

**KENWOOD**  
HI/FI STEREO COMPONENTS

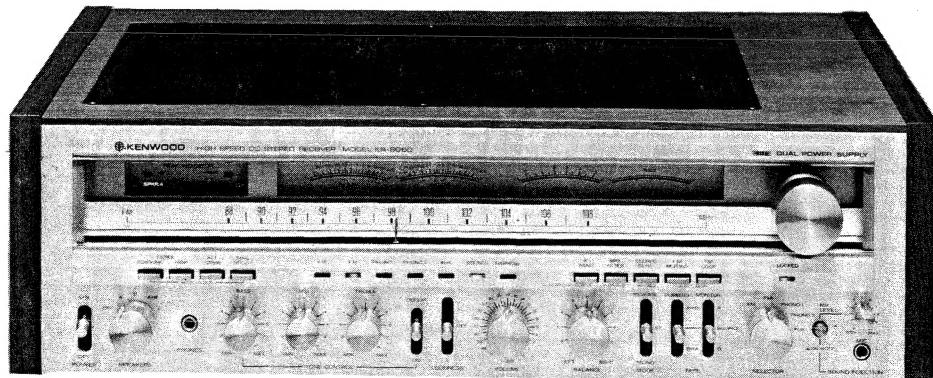
# SERVICE MANUAL

**KR-9050**

An item of adjustment is written in three languages — English, French and German.

*Un article sur réglages est écrit en trois langues, Anglais, Français et Allemand.*

Ein Artikel der Abgleich wird auf drei Sprachen, Englische, Französisch und Deutsch geschrieben.



**HIGH SPEED DC STEREO RECEIVER**

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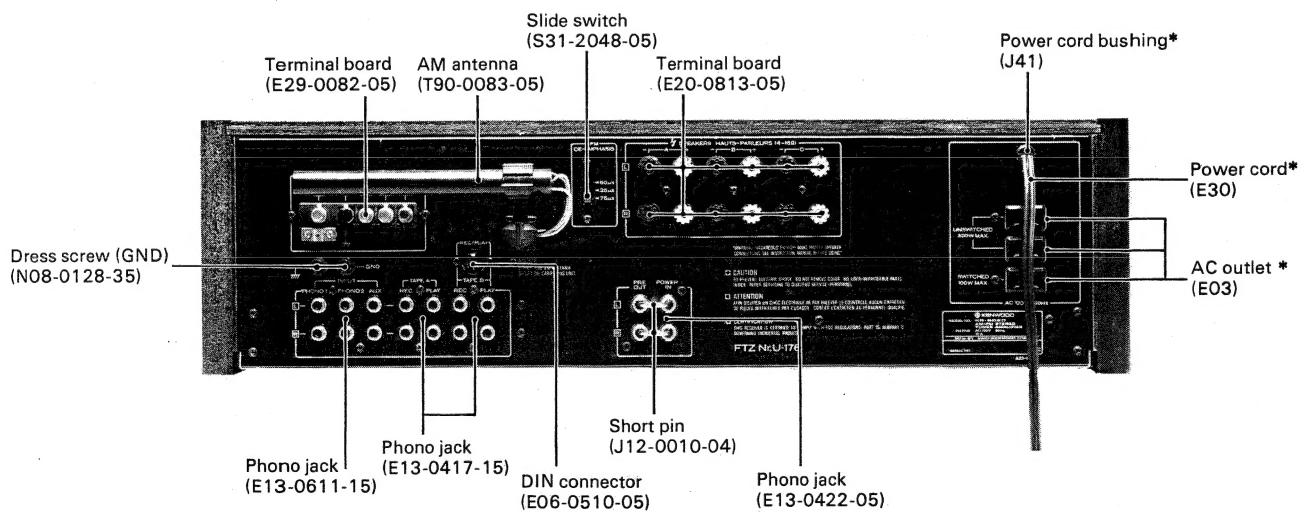
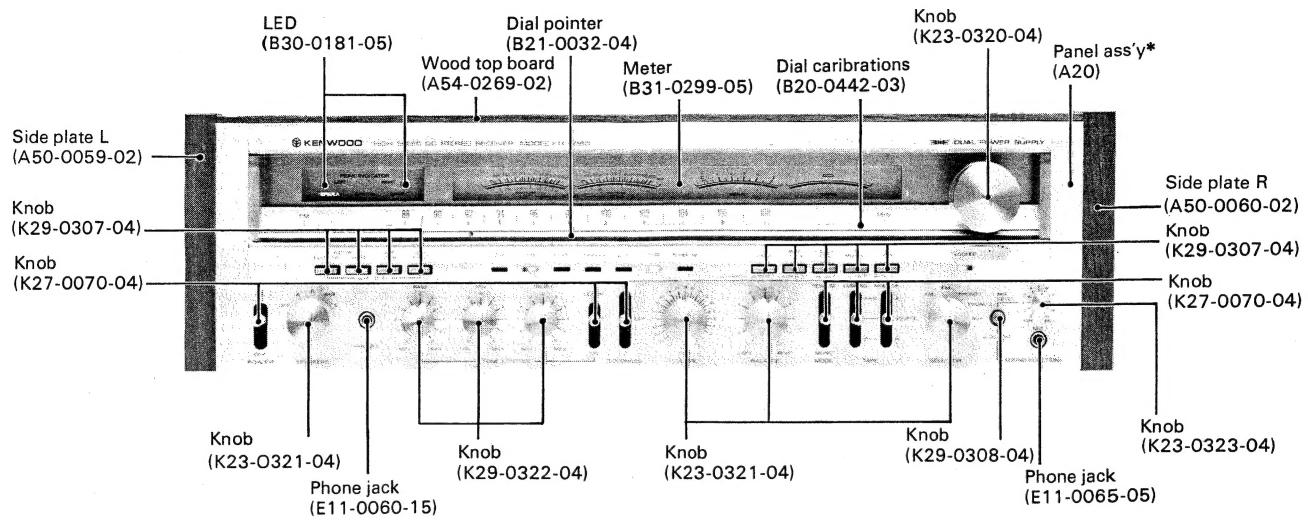
**Note:**

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

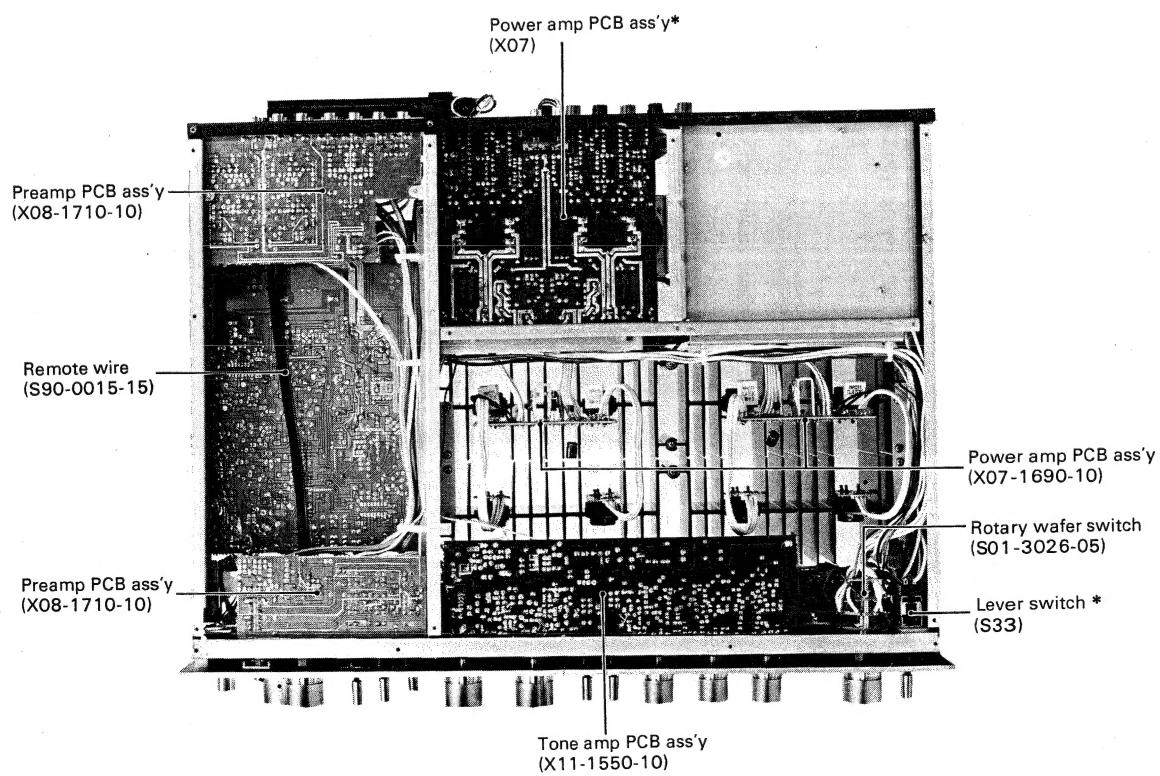
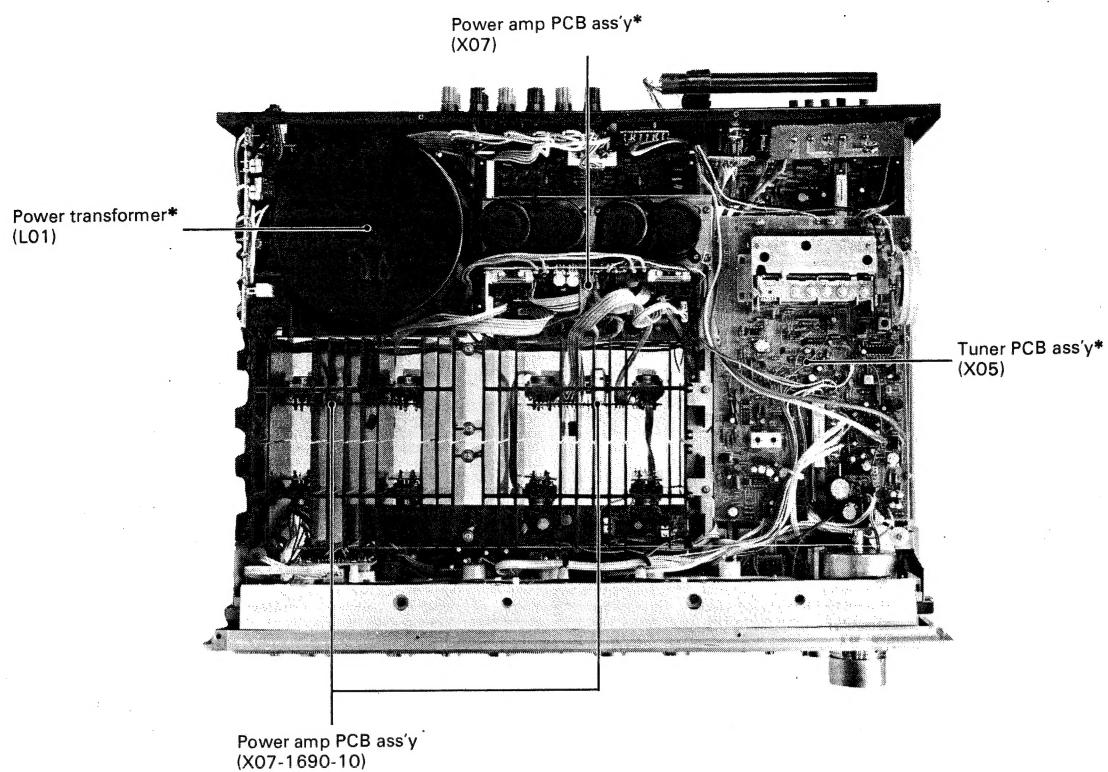
<b>Region</b>	<b>Code</b>
U.S.A.....	K
Canada.....	P
PX.....	U
Australia.....	X
Europe.....	W
Scandinavia.....	L
England.....	T
South Africa.....	S
Other Areas.....	M

There is no plan for producing units of X and S types.

## EXTERNAL VIEW

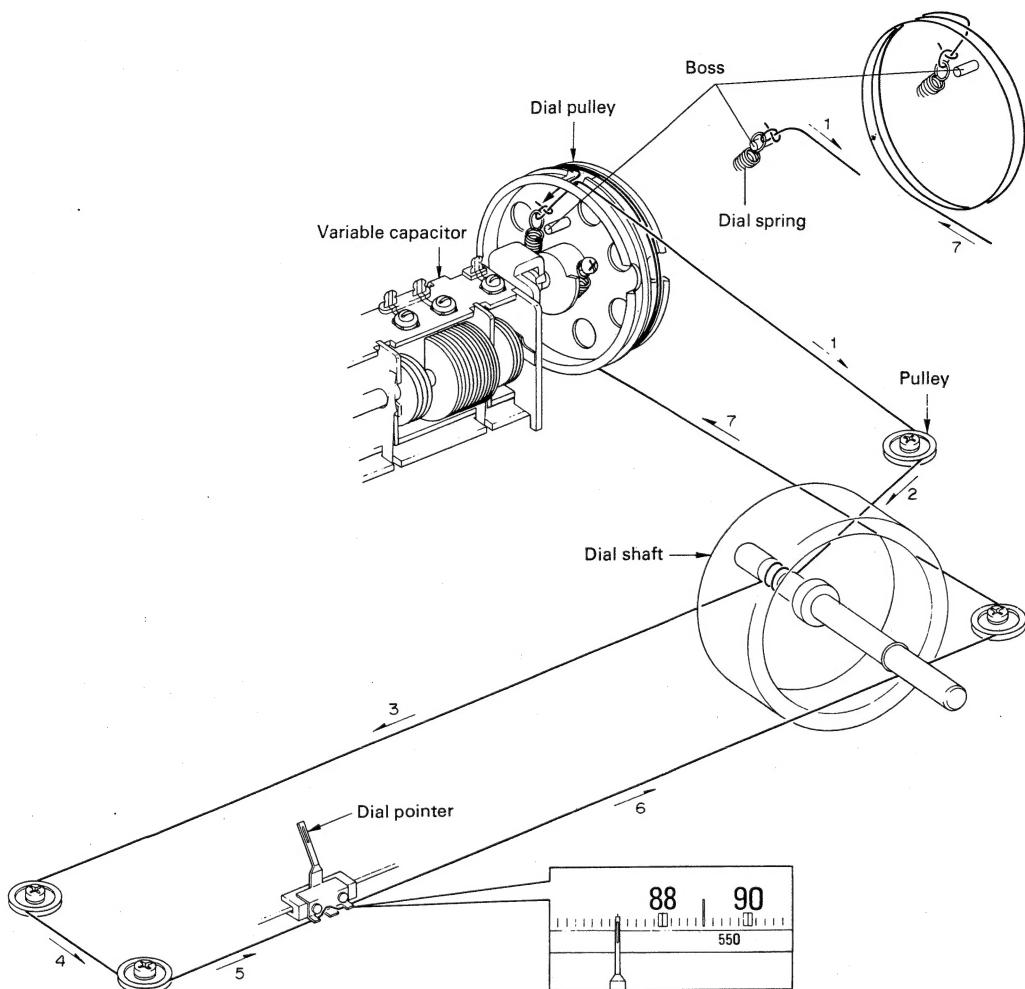


\* Refer to parts list.

**INTERNAL VIEW**

\* Refer to parts list.

## DIAL CORD STRINGING

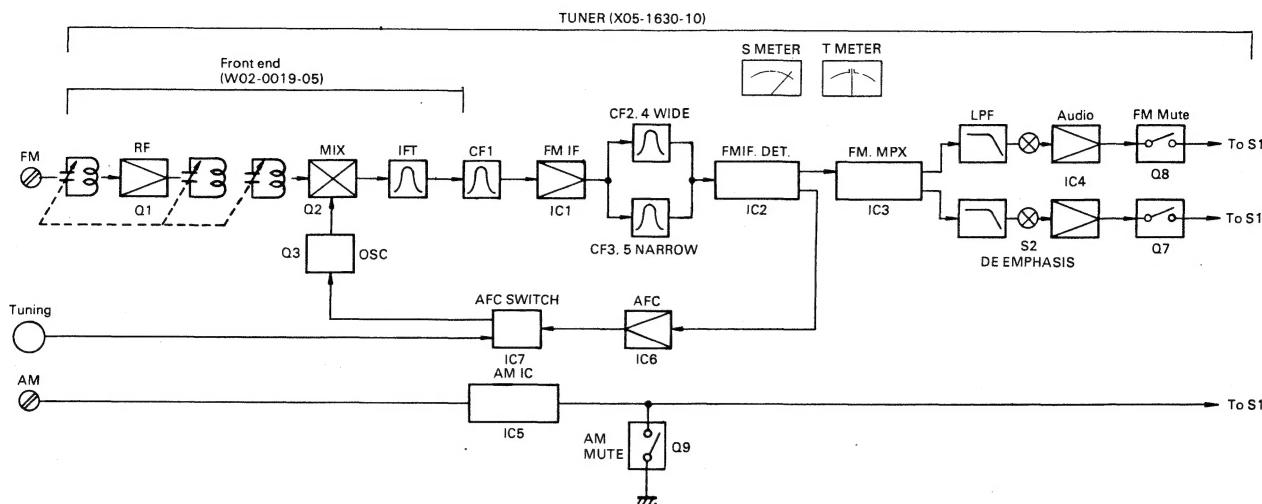


## DIAL CORD STRINGING

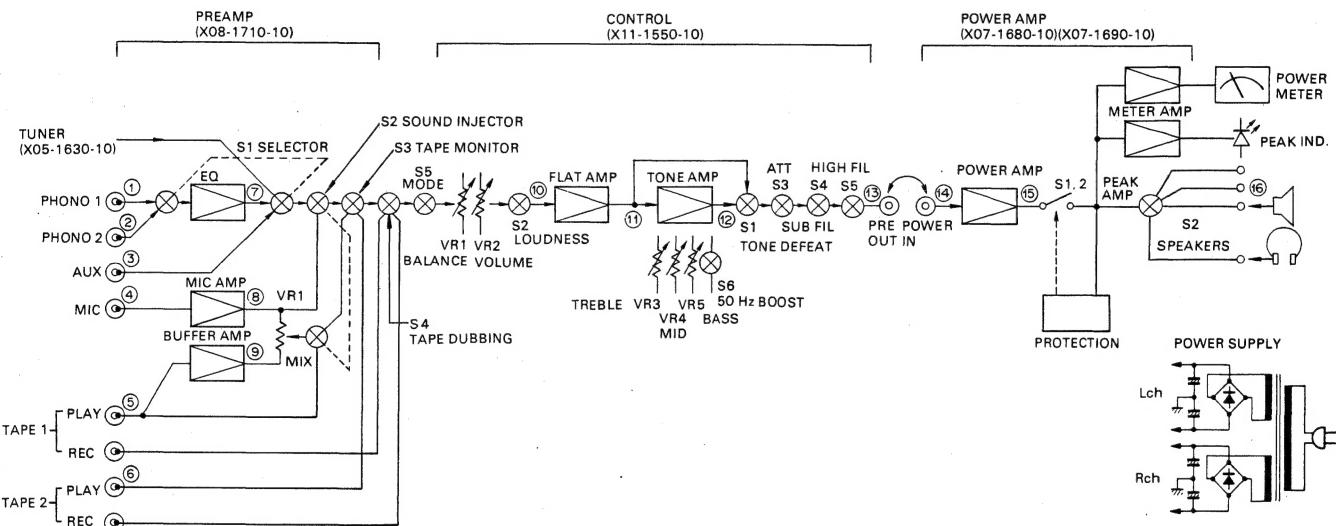
1. Fully open the variable capacitor.
2. Set the dial pulley as illustrated and fix it with a screw.
3. Tie the end of the dial cord at the dial spring, giving a margin of about 10 cm. Hook the spring on the boss.
4. Dress the dial cord in the direction of "1" to "2" and wind 2 turns around the dial shaft starting from its lower side.
5. Dress the dial cord in the direction of "3" through "7" and wind it 2 and a half turns around the dial pulley starting from its lower side.
6. Rigidly tie it with the margin cord and the dial spring (provided as described in 3, above) and release the dial spring from the boss.
7. Fully close the variable capacitor, then mount the dial pointer as illustrated.

## BLOCK AND LEVEL DIAGRAM

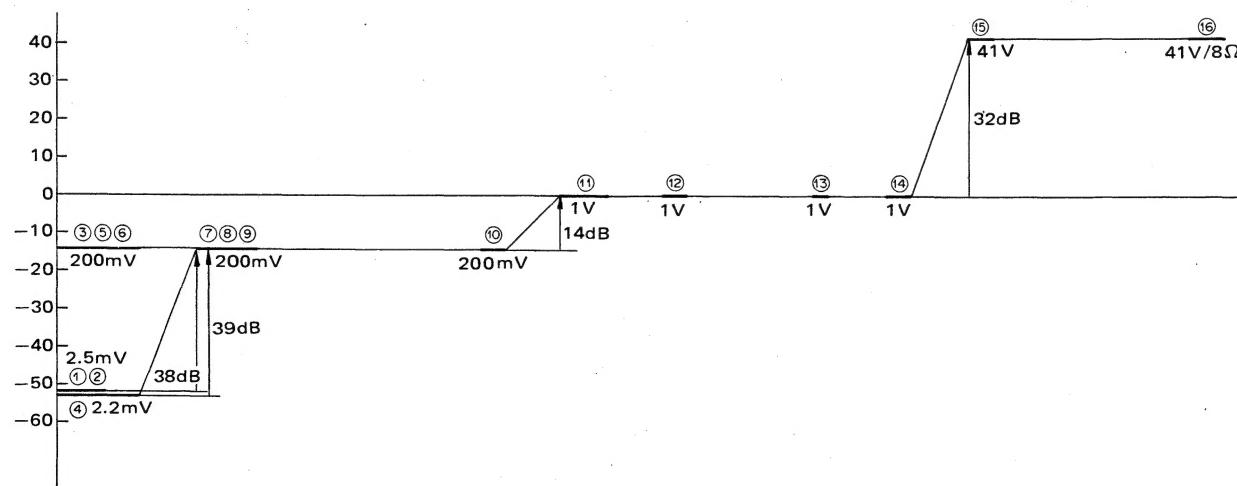
### TUNER



### AMP



### LEVEL DIAGRAM



## CIRCUIT DESCRIPTION

### SOUND INJECTION

#### MIC and SOURCE mixing

If a single tape deck is used in your system it should be connected to the TAPE B jacks; the factory-installed U-shaped jumpers should be in place in the TAPE A jacks.

To mix mic and source signals, proceed as follows.

1. Turn the SOUND INJECTION switch on to activate sound injection. Select the desired source with the SELECTOR switch.
2. Set the TAPE DUBBING switch to A ▷ B and the TAPE MONITOR switch to A.
3. The sound heard from the speakers will be mic plus source. Adjust mic level for your preference by turning the SOUND INJECTION knob.
4. A recording of the mixed performance can be made with the tape deck connected to the B jacks.

Table 1 gives a summary of audio combinations at speaker and tape REC jacks for all applicable switch settings.

#### MIC and TAPE mixing

If two tape decks are incorporated into your system, you can mix mic audio with playback signals from tape deck A and record the mix on tape deck B.

For this operation the U-shaped jumpers should have been removed from the jacks marked TAPE A, and the second tape deck connected to these jacks.

1. Turn the SOUND INJECTION switch on to activate sound injection.
2. Set the TAPE DUBBING switch to A ▷ B and the TAPE MONITOR switch to A.
3. Play back the tape on tape deck A. The sound heard in the speakers will be the mic plus tape deck A playback.
4. Adjust mic level for your preference by turning the SOUND INJECTION knob.
5. A recording of the TAPE A playback with your added accompaniment can be recorded on tape deck B.

Table 2 gives a summary of audio combinations at speaker and tape jacks for all applicable switch settings.

**Table 1 (With U-shaped jumpers)**

SOUND INJECTION SWITCH	TAPE DUBBING SWITCH POSITION	TAPE MONITOR SWITCH POSITION	SPEAKER AUDIO	AUDIO TAPE A "REC" JACKS	AUDIO TAPE B "REC" JACKS	REFERENCE
"ON"	"SOURCE"	"SOURCE"	MIC AND SOURCE	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	MIXING VOLUME INOPERATIVE
		"A"	MIC AND SOURCE	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	
		"B"	TAPE B	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	
	"A ▷ B"	"SOURCE"	MIC AND SOURCE	SOUND SELECTED BY SELECTOR	MIC AND SOURCE	
		"A"	MIC AND SOURCE	SOUND SELECTED BY SELECTOR	MIC AND SOURCE	
		"B"	TAPE B	SOUND SELECTED BY SELECTOR	MIC AND SOURCE	

**Table 2 (Without U-shaped jumpers)**

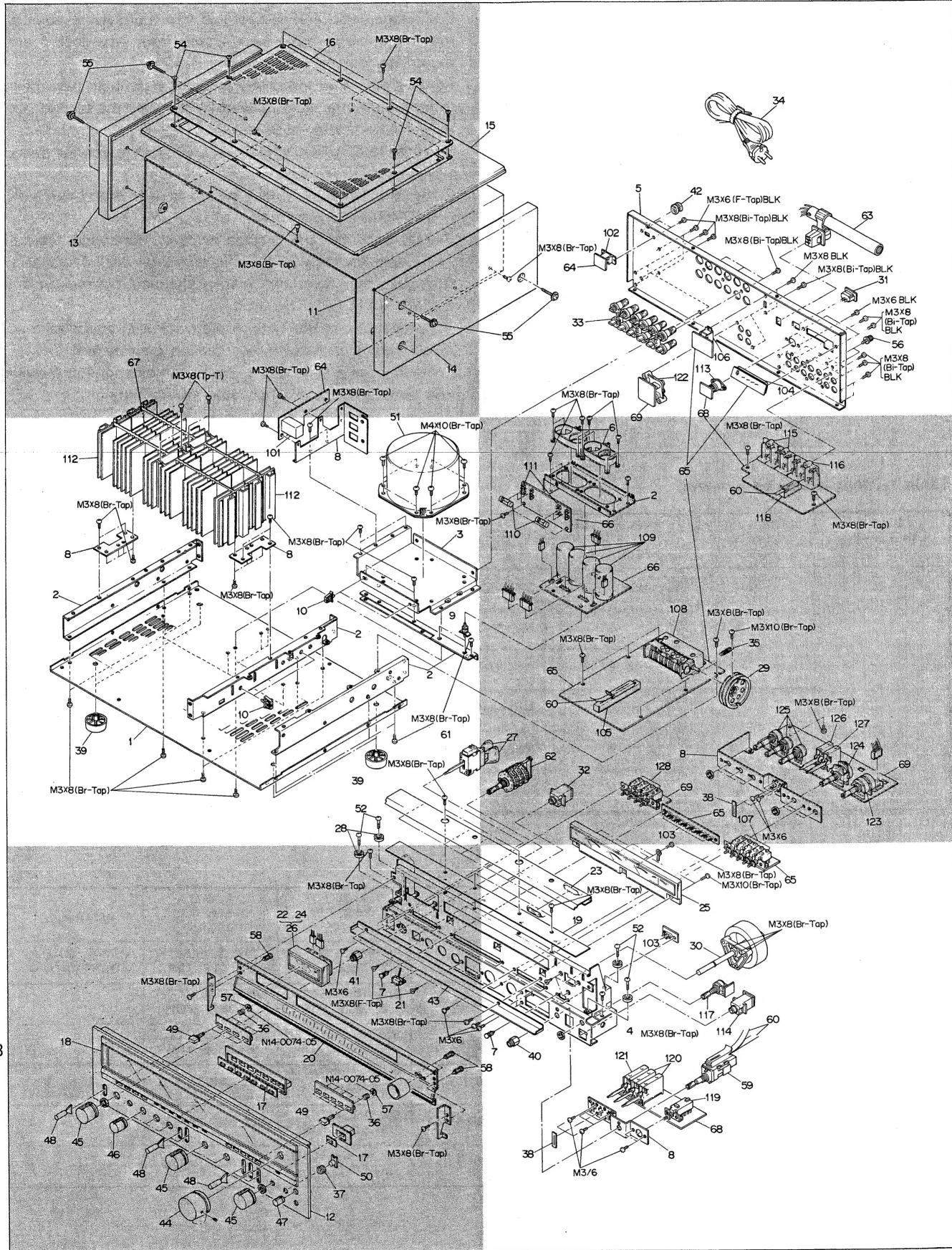
SOUND INJECTION SWITCH	TAPE DUBBING SWITCH POSITION	TAPE MONITOR SWITCH POSITION	SPEAKER AUDIO	AUDIO TAPE B "REC" JACKS	AUDIO REFERENCE JACKS	REFERENCE
"ON"	"SOURCE"	"SOURCE"	MIC ONLY	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	MIXING VOLUME INOPERATIVE
		"A"	MIC AND TAPE A	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	
		"B"	TAPE B	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	
	"A ▷ B"	"SOURCE"	MIC ONLY	SOUND SELECTED BY SELECTOR	MIC AND TAPE A	
		"A"	MIC AND TAPE A	SOUND SELECTED BY SELECTOR	MIC AND TAPE A	
		"B"	TAPE B	SOUND SELECTED BY SELECTOR	MIC AND TAPE A	

## **EXPLODED VIEW**

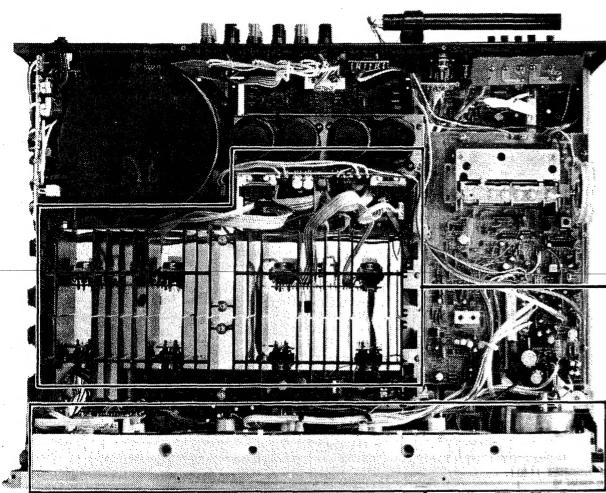
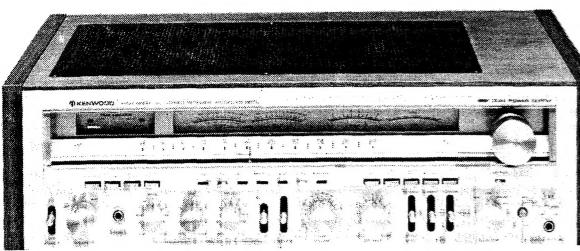
See parts numbers on page 20.

A

B

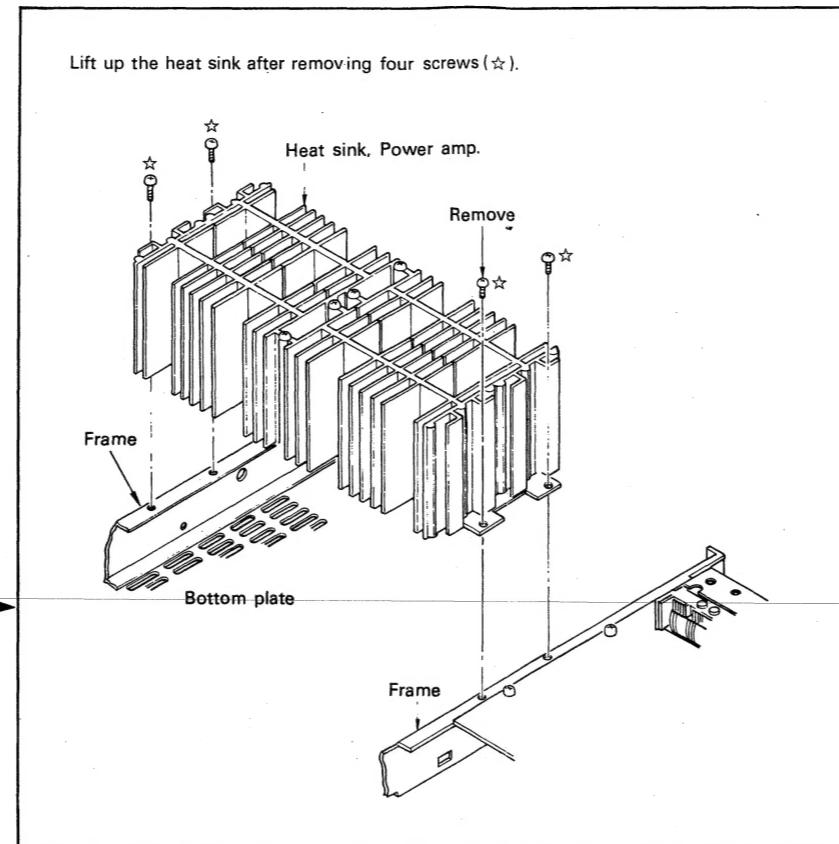


## DISASSEMBLY FOR REPAIR

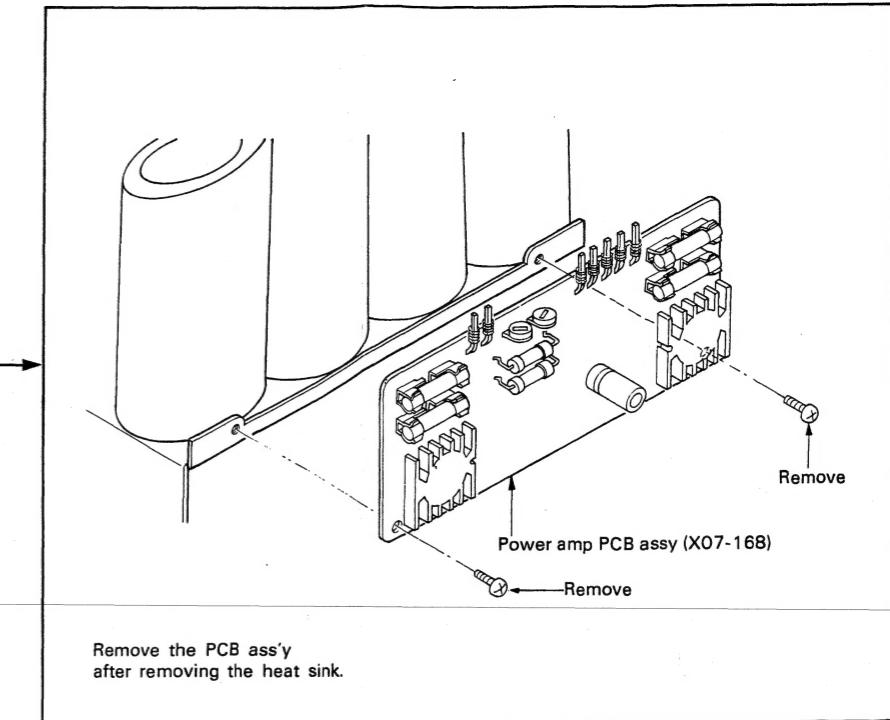


1. Remove the bottom plate.
2. Remove the side plate (L), (R) and the wood top board.
3. Remove the case.  
(Refer to EXPLODED VIEW)

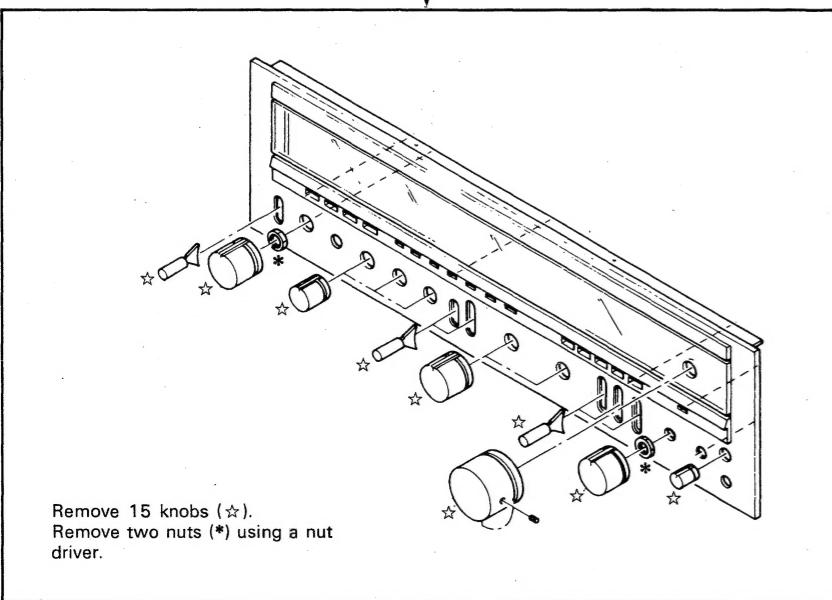
## POWER AMP (X07-169)



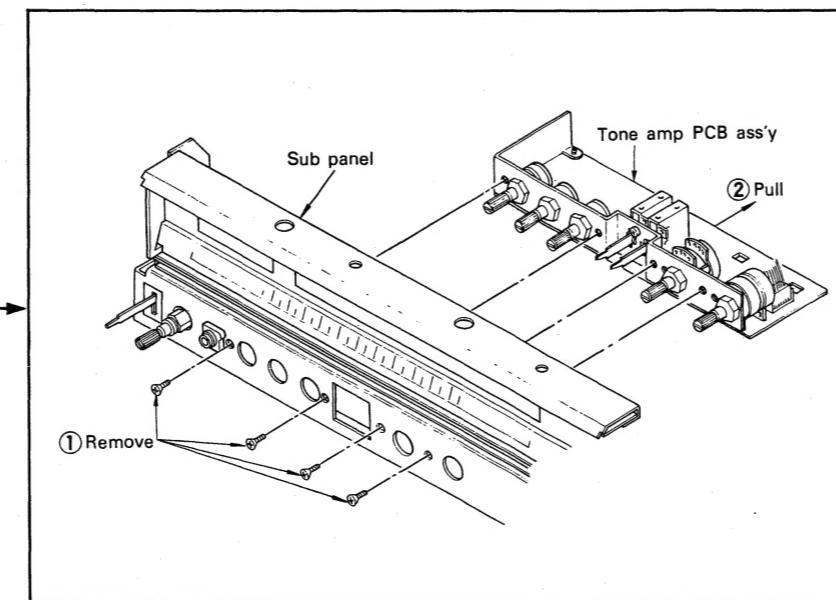
## POWER AMP (X07-168)



## REMOVE THE PANEL

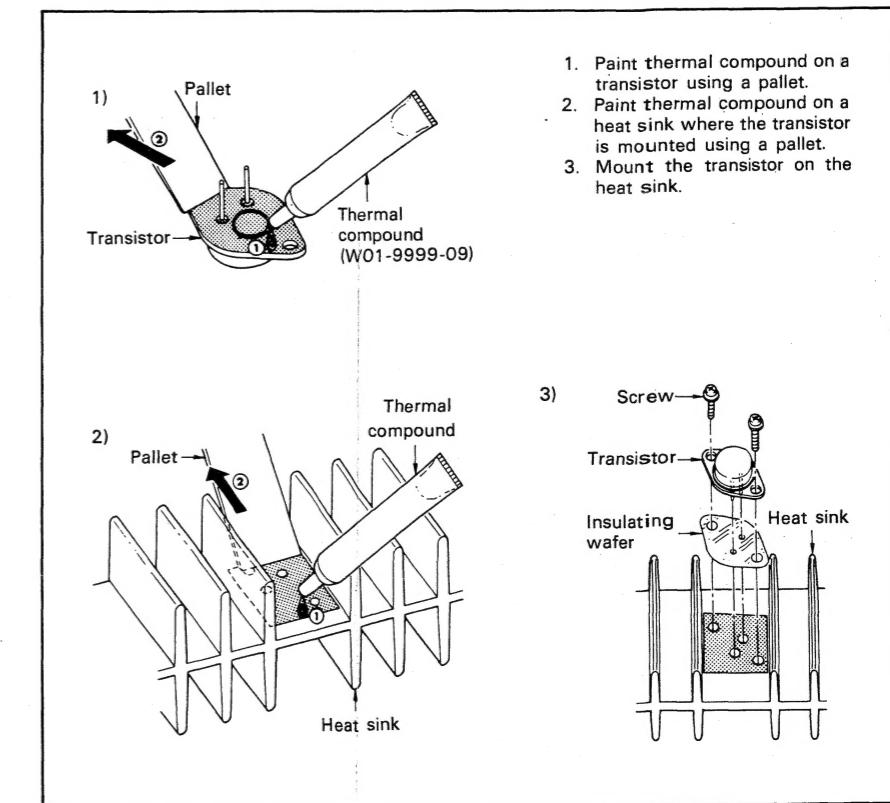


## CONTROL AMP. ETC.



1. Paint thermal compound on a transistor using a pallet.
2. Paint thermal compound on a heat sink where the transistor is mounted using a pallet.
3. Mount the transistor on the heat sink.

## POWER TRANSISTOR



## ADJUSTMENT

## INSTRUMENTS USED

AM signal generator .....	AM-SG
FM signal generator .....	FM-SG
Audio generator .....	AG
Solid state voltmeter .....	SSVM
FM multiplex generator .....	FM-MPX
Oscilloscope	
Frequency counter	
Distortion meter	

## NOTES FOR ADJUSTMENT

\* The check points are shown on both circuit diagram and printed circuit board diagram.

\* 0 dB = 1  $\mu$ V

NO.	ALIGN- MENT	TEST EQUIPMENTS		RECEIVER SETTING	OUTPUT SETTING	ADJUSTMENT POINTS	REMARKS
		CONNEC- TION	SETTING				
<b>FM SECTION</b>							
①	DISCRI	—	—	FM ST. SENS 2 LOCK OFF IF WIDE TUNING: To a dead spot in the FM band	T meter	L5a	Meter indication in the center
		A	95 MHz 60 dB (ANT.) 1 kHz (MOD.) 75 kHz (DEV.)	FM 95 MHz SENS 2 LOCK OFF IF WIDE	B	L5b	Minimum distortion
Repeat the alignments of 1 and 2 a few times.							
③	VCO	A	95 MHz 60 dB (ANT.) 0 (DEV.)	- ditto -	C Frequency coun- ter between R63 and GND via SSVM Note 1	VR3	Adjusted to 76 kHz $\pm 200$ Hz
④	19 kHz CANCEL	D	FM-MPX: PILOT SIGNAL FM-SG: 60 dB (ANT.)	-ditto-	SSVM to Pin 5 or Pin 6 of IC3	VR4	A compromise ad- justment may be required if left and right outputs are unequal..
⑤	SEPARATION	D	FM-MPX: SELECTOR L or R 1 kHz (MOD.) PILOT (6.75 kHz DEV.) FM-SG: 955 MHz 60 dB (ANT.) 68.25 kHz (DEV.)	- ditto -	B R out (SELECTOR→L) L out (SELECTOR→R)	VR5	A compromise ad- justment may be required if left-to- right and right- to-left separations are unequal.
⑥	IFT	D	FM-MPX: SELECTOR L + R 1 kHz (MOD.) PILOT (6.75 kHz DEV.) FM-SG: 95 MHz 60 dB (ANT) 68.25 kHz (DEV.)	- ditto -	B	IFT (Front end)	Minimum distortion. Adjust slightly.
⑦	STEREO BEACON	D	FM-MPX: SELECTOR L + R 1 kHz (MOD.) PILOT (6.75 kHz DEV.) FM-SG: 95 MHz 20 dB (ANT) 68.25 kHz (DEV.)	FM 95 MHz SENS 1 LOCK OFF IF WIDE	STEREO INDICATOR (Front panel)	VR1	STEREO INDICATOR lights

NO.	ALIGN- MENT	TEST EQUIPMENTS		RECEIVER SETTING	OUTPUT SETTING	ADJUSTMENT POINTS	REMARKS		
		CONNEC- TION	SETTING						
<b>AM SECTION</b>									
1	TRACKING	I	E	1000 kHz 400 Hz 30% (MOD.)	AM 1000 kHz	B	L10 Maximum optimum waveform.		
2		E	E	600 kHz 400 Hz 30% (MOD.)	AM 600 kHz	B	L9 Bar antenna Maximum optimum waveform.		
3		E	E	1400 kHz 400 Hz 30% (MOD.)	AM 1400 kHz		TCAM 1.2		
Repeat the alignments of 2 and 3 a few times.									
<b>AUDIO SECTION</b>									
I	OFFSET VOLTAGE	—	—	VOLUME to minimum position SPEAKERS B	F Lch (R-ch)	X07-1680 VR1 (VR2)	OV		
II	BIAS CURRENT	—	—	VOLUME to minimum position	DC voltmeter between the emitters of Q7 and Q11 (Q8 and Q12) Note 2	X07-1690 VR1 (VR2)	20 mV		
III	POWER METER	G	1 kHz 1V	TAPE B PLAY Adjust VOLUME so that SSVM indicates 4.9V SPEAKERS A	H POWER METER	X07-1680 VR3 (VR4)	SSVM 4.9V POWER METER 3W		

## REFERENCE: FM FRONT END

The FM front end section is completely adjusted in the factory and further adjustment is not necessary.  
When the transistor and/or FET are replaced, perform the following adjustment.

- (1) Set FM-SG to 108 MHz, 1 kHz Mod,  $\pm 75$  kHz Dev. and connect it to the antenna terminal of the receiver.
- (2) Set the dial pointer at 108 MHz.
- (3) Adjust TCO so that T meter gives a mid-scale reading.
- (4) Adjust TCA, TCR1 and TCR2 so that S meter deflects maximum.

When the FM front end section cannot be repaired by replacing semiconductors and taking steps in "(1)~(4)", replace the front end (W02-0019-05) and do the following.

- (1) Set FM-SG to 90 MHz, 1 kHz Mod,  $\pm 75$  kHz, 60 dB and connect it to the antenna terminal of the receiver.
- (2) Receive the FM-SG signal.
- (3) Fix the dial pointer at 90 MHz.

- \* Repeat tracking adjustments 2 or 3 times and finally confirm the result using respective local stations.
- \* FM tracking on lower side cannot be adjusted since a fixed coil is employed.

## RÉGLAGES

## INSTRUMENTS USITE

Générateur MA.....	AM-SG
Générateur MF.....	FM-SG
Générateur Audio fréquences .....	AG
Voltmètre à transistor .....	SSVM
Générateur multiplex stéréo.....	FM-MPX
Oscilloscope	
Compteur de fréquence	
Distorsiomètre	

## REMARQUES DE RÉGLAGES

- \* Le point de contrôle est indiqué sur le schéma de montage et le tracé du circuit imprimé.
- \* 0 dB = 1 µV

NO.	ALIGNEMENT	APPAREILLAGE		INDICATEUR DE SORTIE	POINTS DE RÉGLAGE	REMARQUES
		RACCORDEMENT	RÉGLAGE			
<b>SECTION MF</b>						
①	INDICATEUR À ZÉRO CENTRAL	—	—	FM STEREO SENS: 2 LOCK: OFF IF: WIDE NOISE:	INDICATEUR À ZÉRO CENTRAL	L5 Aiguille de l'indicateur à zéro central en position centrale.
②	INDICATEUR À ZÉRO CENTRAL	A	96 MHz 1 kHz (Mod.) 75 kHz (Dev.) 60 dB (Ant.)	FM 95 MHz STEREO SENS: 2 LOCK: OFF IF: WIDE	B	L5 Distortion minimale.
Répéter les points "1" et "2" plusieurs fois.						
③	VCO	A	95 MHz 0 (Dev.) 60 dB (Ant.)	idem	C Relier le compteur de fréquence à la résistance R63 par SSVM	VR3 oscillateur à 76 kHz ±200 Hz (Note 1)
④	Circuit suppression de signal pilote	D	95 MHz SIGNAL PILOTE 60 dB (Ant.)	idem	Relier le SSVM à plot 5 et 6 de IC3	VR4 Si la sortie de la droite et la gauche ne sont pas mème, régler le potentiomètre ajustable pour que la tension de sortie est même.
⑤	SÉPARATION	D	95 MHz 1 kHz (Mod.) 68,25 kHz (Dev.) 60 dB (Ant.) 6,75 kHz (PILOTE) SELECTION (L ou R)	idem	E Sortie de droit (SELECTION: L) sortie de gauche (SELECTION: R)	VR5 Si la sortie de la droite de diaphonie et la gauche ne sont pas mème régler le potentiomètre ajustable pour que la tension de sortie est même.
⑥	TFI	D	95 MHz 1 kHz (Mod.) 68,25 kHz (Dev.) 60 dB (Ant.) 6,75 kHz (PILOTE) SELECTION (L + R)	idem	B	TFI Distortion minimale.
⑦	INDICATEUR DE STÉRÉO	D	95 MHz 1 kHz (Mod.) 68,25 kHz (Dev.) 20 dB (Ant.) 6,75 kHz (PILOTE) SELECTION (L + R)	FM 95 MHz SENS: 1 LOCK: OFF IF: WIDE	INDICATEUR DE STÉRÉO	VR1 Luit

NO.	ALIGNEMENT	APPAREILLAGE		RÉGLAGE DU AMPLI-TUNER	INDICATEUR DE SORTIE	POINTS DE RÉGLAGE	REMARQUES
		RACCORDEMENT	RÉGLAGE				
<b>SECTION MA</b>							
1	TFI	E	1000 kHz 4000 Hz, 30% (Mod.)	AM 1000 kHz	B	L10	Déviation maximale.
2	ALIGNEMENT	idem	600 kHz 400 Hz, 30% (Mod.)	AM 600 kHz	idem	L9 Antenne ferrite MA	Déviation maximale
3	ALIGNEMENT	idem	1400 kHz 400 Hz, 30% (Mod.)	AM 1400 kHz	idem	TCAM 1,2	Déviation maximale.
Répéter les 2 et 3 plusieurs fois.							
<b>SECTION AMPLI</b>							
I	TENSION DE DÉCALAGE	—	—	VOLUME: minimale SPEAKERS: B	F	VR1, 2 (X07-1680)	0V
II	COURANT DE POLARISATION	—	—	idem	Bracher le voltmètre c.c. aux émetteurs de Q7 et Q11 (Q9 et Q12) (Note 2)	VR1, 2 (X07-1690)	20 mV
III	POWER MÈTRE	G	1 kHz 1V	Regler le VOLUME en sortie que. Le VU mètre indique 3W lorsque le voltmètre indique 4,9V	H POWER MÈTRE	VR3, 4 (X07-1680)	3W

## REFERENCE: PARTIE FRONTALE FM

La partie frontale FM a été parfaitement réglée en usine et aucun réglage supplémentaire n'est requis.

Si l'on remplace le transistor et/ou FET, il convient d'effectuer le réglage suivant:

- Régler FM-SG sur 108 MHz, 1 kHz Mod., ±75 kHz Dev et le connecter à la borne d'antenne du ampli-tuner.
- Mettre l'aiguille du cadran à 108 MHz.
- Régler TCO de façon que l'indicateur à ZERO CENTRAL donne une lecture à mi-échelle.
- Ajuster TCA, TCR1 et TCR2 de façon que l'indicateur de champ dévie au maximum.

Si la partie frontale FM ne peut pas être réparée en remplaçant les semi-conducteurs et en procédant suivant les indications dans (1)~(4), remplacer l'assemblage PCB de la partie frontale (W02-0019-05) et effectuer les opérations suivantes:

- Régler FM-SG à 90 MHz, 1 kHz Mod., ±75 kHz, 60 dB et le connecter à la borne d'antenne du récepteur.
- Recevoir le signal FM-SG.
- Fixer l'aiguille du cadran à 90 MHz.

\* Renouveler plusieurs fois le réglage de reproduction et confirmer la réception de l'émission.

\* Comme on utilise une bobine fixée, l'alignement sur band latérale inférieure n'est pas possible.

## ABGLEICH

## PRÜFEINRICHTUNGEN

MW-Signalgenerator .....	AM-SG	Oszilloskop
Frequenzzähler		
Klirrfactormesser		
.....		
HINWEISE		

- \* Der Prüfpunkt (TP) ist im Schaltplan aufgeführt.
- \* 0 dB = 1 µV

NR.	ABGLEICH	PRÜFEINRICHTUNG		STEUERGERÄT EINSTELLUNG	AUSGANGS- ANZEIGE	EINSTELL- PUNKT	BEMERKUN- GEN
		AN- SCHLÜSSE	EINSTELLUNG				
<b>UKW-EMPFANGSABTEILUNG</b>							
①	DISKRIMI- NATOR (1)	—	—	SELECTOR: FM STEREO SENS: 2 FM LOCK: OFF IF BAND: WIDE Abstimmung: zu einem toten Freck im UKW-Bereich.	Kanalmitten- Anzeiger	L5a	Den Zeiger des Kanalmitten- Anzeiger mittig einstellen.
②	DISKRIMI- NATOR (2)	Ⓐ	95 MHz 60 dB (Steuergerät- Eingangspegel) 1 kHz, ±75 kHz Hub	SELECTOR: FM STEREO SENS: 2 FM LOCK: OFF IF BAND: WIDE Abstimmung: 95 MHz	Ⓑ	L5b	Minimaler Klirrfaktor
Abstimmungen „1 und 2“ mehrere Male wiederholen.							
③	SPANNUNGS- GEREGELTER OSZILLATOR	Ⓐ	95 MHz 60 dB (Steuergerät- Eingangspegel) 0 Hub	SELECTOR: FM STEREO SENS: 2 FM LOCK: OFF IF BAND: WIDE Abstimmung: 95 MHz	Ⓒ Frequenzzähler zwischen R63 und GND via SSVM	VR3	76 kHz ±200 Hz
④	PILOTTON- UNTER- DRÜCKUNG	Ⓓ	95 MHz 60 dB (Steuergerät- Eingangspegel) Pilotton	- dito -	Gleichspannungs- messer zu Klemme 5 von IC3	VR4	Eine Kompromiß- einstellung wird gefordert wenn Ausschlag von den rechten und linken Kanäle ungleich sind.
⑤	STEREO KANAL TRENNUNG	- dito -	95 MHz 60 dB (Steuergerät- Eingangspegel) 1 kHz, ±68,25 kHz Hub Wähler: Loder R Pilotton (±6,75 kHz Hub)	- dito -	Ⓓ R-Aus (Wähler: L) L-Aus (Wähler: R)	VR5	Eine Kompromiß- einstellung wird gefordert wenn dem Übersprech- anteil des linken kanals in den rechten kanal und dem Über- sprechanteil des rechten kanals in den linken kanal ungleich sind.
⑥	ZF-T	- dito -	95 MHz 60 dB (Steuergerät- Eingangspegel) 1 kHz, ±68,25 kHz Hub Wähler: L + R Pilotton: (±6,75 kHz Hub)	- dito -	Ⓑ	ZF-T (Frontende)	Minimaler Klirr- faktor, Schwacher Einstellung
⑦	STEREO INDIKATOR	- dito -	95 MHz 20 dB (Steuergerät- Eingangspegel) 1 kHz, ±68,25 kHz Hub Wähler: L + R Pilotton (±6,75 kHz Hub)	SELECTOR: FM STEREO SENS: 1 FM LOCK: OFF IF BAND: WIDE Abstimmung:	INDIKATOR	VR1	STEREO INDIKATOR aufleuchtet.

NR.	ABGLEICH	PRÜFEINRICHTUNG		STEUERGERÄT EINSTELLUNG	AUSGANGS- ANZEIGE	EINSTELL- PUNKT	BEMERKUN- GEN
		AN- SCHLÜSSE	EINSTELLUNG				
<b>MW-EMPFANGSABTEILUNG</b>							
1	ZF-T	Ⓑ	1.000 kHz 400 Hz, 30% Mod.	SELECTOR: AM Abstimmung: 1.000 kHz	Ⓑ	L10	Maximaler Ausschlag
2	EMPFANGS- BEREICH (1)	- dito -	600 kHz 400 Hz, 30% Mod.	SELECTOR: AM Abstimmung: 600 kHz	- dito -	L9 MW- Ferritantenna	- dito -
3	EMPFANGS- BEREICH (2)	- dito -	1.400 kHz 400 Hz, 30% Mod.	SELECTOR: AM Abstimmung: 1.400 kHz	- dito -	TCAM1, 2	- dito -
Abstimmungen „2 und 3“ mehrere Male wiederholen.							
<b>VERSTÄRKER</b>							
I	OFFSET- SPANNUNG	—	—	VOLUME zu Stellung „∞“	Ⓕ L-Kanal (R-Kanal)	X07-1680 VR1 (VR2)	0V
II	LEERLAUFS	—	—	- dito -	Gleichspannungs- messer Zwischen den Emitter- Elektroden von Qu und Q11. (Q8 und Q12) Siehe Bemerkung 1.	X07-1690 VR1 (VR2)	20 mV
III	LEISTUNGS- MESSER	Ⓖ	1 kHz 1V	Den VOLUME so regulieren, daß die Gleichspannungs- messer- Ablesung 4,9V ist.	Ⓗ Leistungs- messer	X07-1680 VR3 (VR4)	3W

## HINWEISE: UKW-Frontende.

Das UKW-Frontende wird bereits im Werk vollständig eingestellt. Weitere Einstellung ist daher nicht nötig. Beim Auswechseln des Transistors und/oder des FETs die Einstellung wie folgt vornehmen.

- (1) Den UKW-Signalgenerator auf 108 MHz, 1 kHz Modulation und ±75 kHz Hub einstellen und mit der Antennenklemme des Steuergeräts verbinden.

(2) Den Skalenzeiger auf 108 MHz stellen.

(3) TCO so einstellen, daß Kanalmitten-anzeiger in der Mitte ausschlägt.

(4) TCA, TCR1 und TCR2 so einstellen, daß Feldstärkeinstrument das Maximum anzeigt.

Wenn des UKW-Frontende durch Auswechseln der Halbleiter und/oder durch in Abschnitt „1 ~ 4“ genannten Schritte nicht repariert werden kann, ist die Leiterplatte (W02-0019-05) des Frontendes auszutauschen und folgende Einstellung vorzunehmen.

- (1) Den UKW-Signalgenerator auf 90 MHz, 1 kHz Modulation, ±75 kHz Hub, und 60 dB einstellen und mit der Antennenklemme des Steuergeräts verbinden.

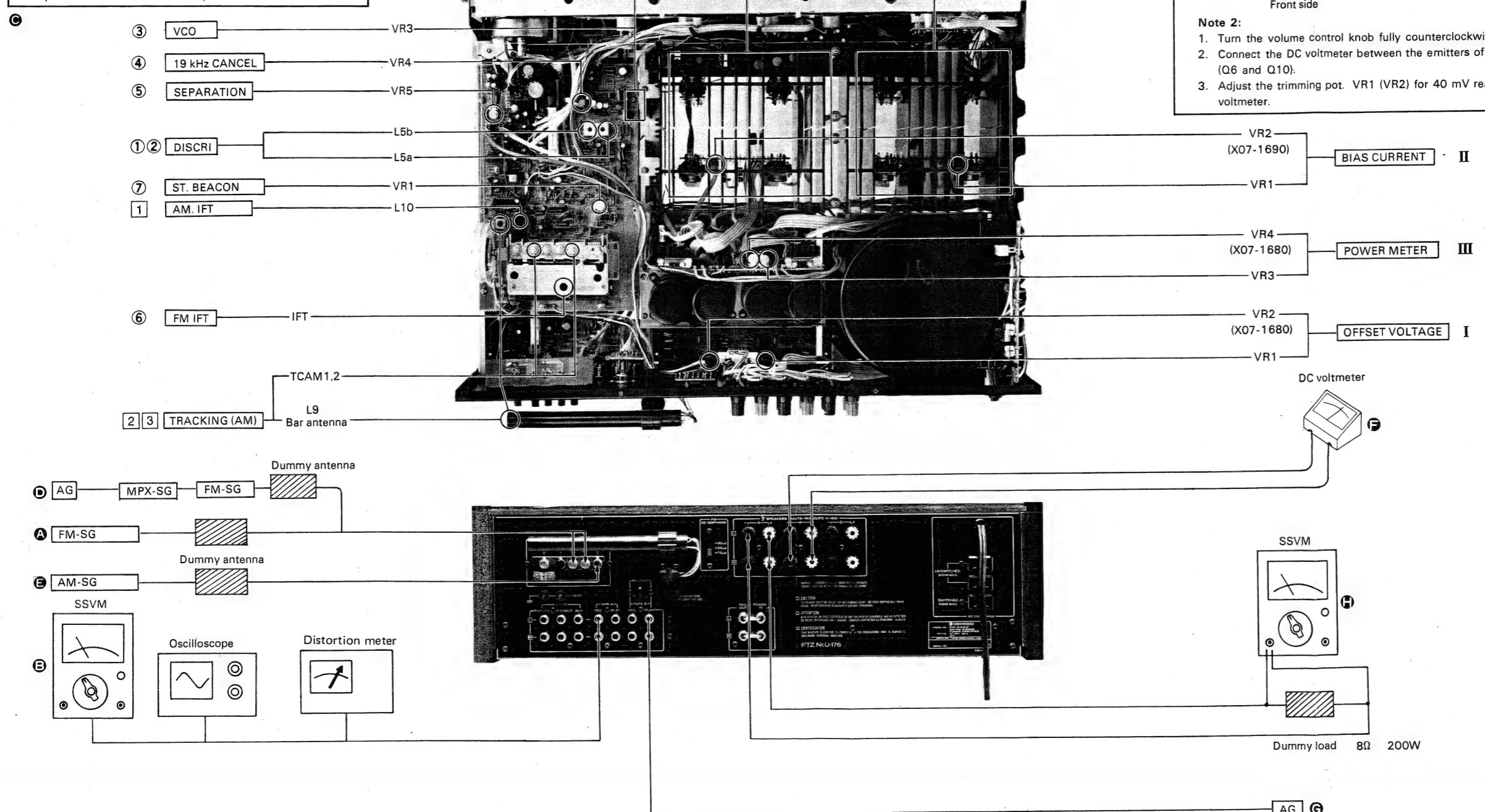
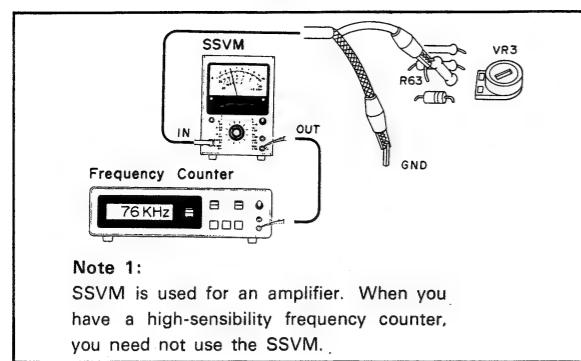
(2) Den Steuergeräts so einstellen, daß Meßsendersignal empfangen wird, während der Skalenzeiger auf 90 MHz zeigt.

\* Den Empfangsbereich einige Male einstellen und den Empfang überprüfen.

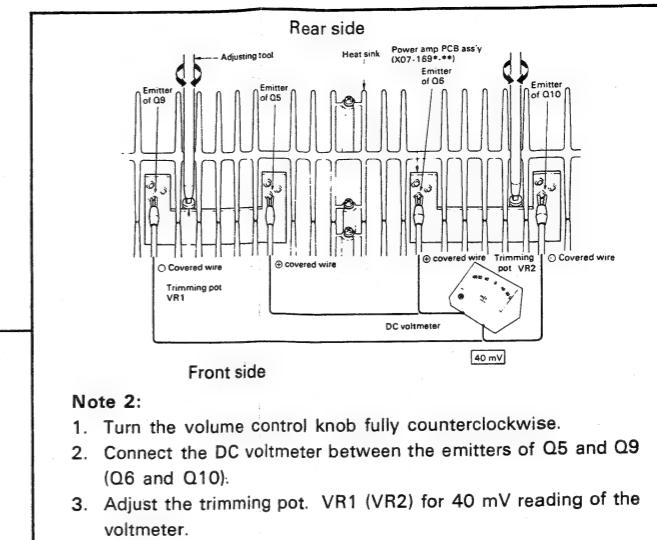
\* Die UKW-Empfangsbereich auf der unteren Seite kann nicht geregelt werden, weil eine Festspule verwendet wird.

## ADJUSTMENT

## FM, AM SECTION



## AUDIO SECTION

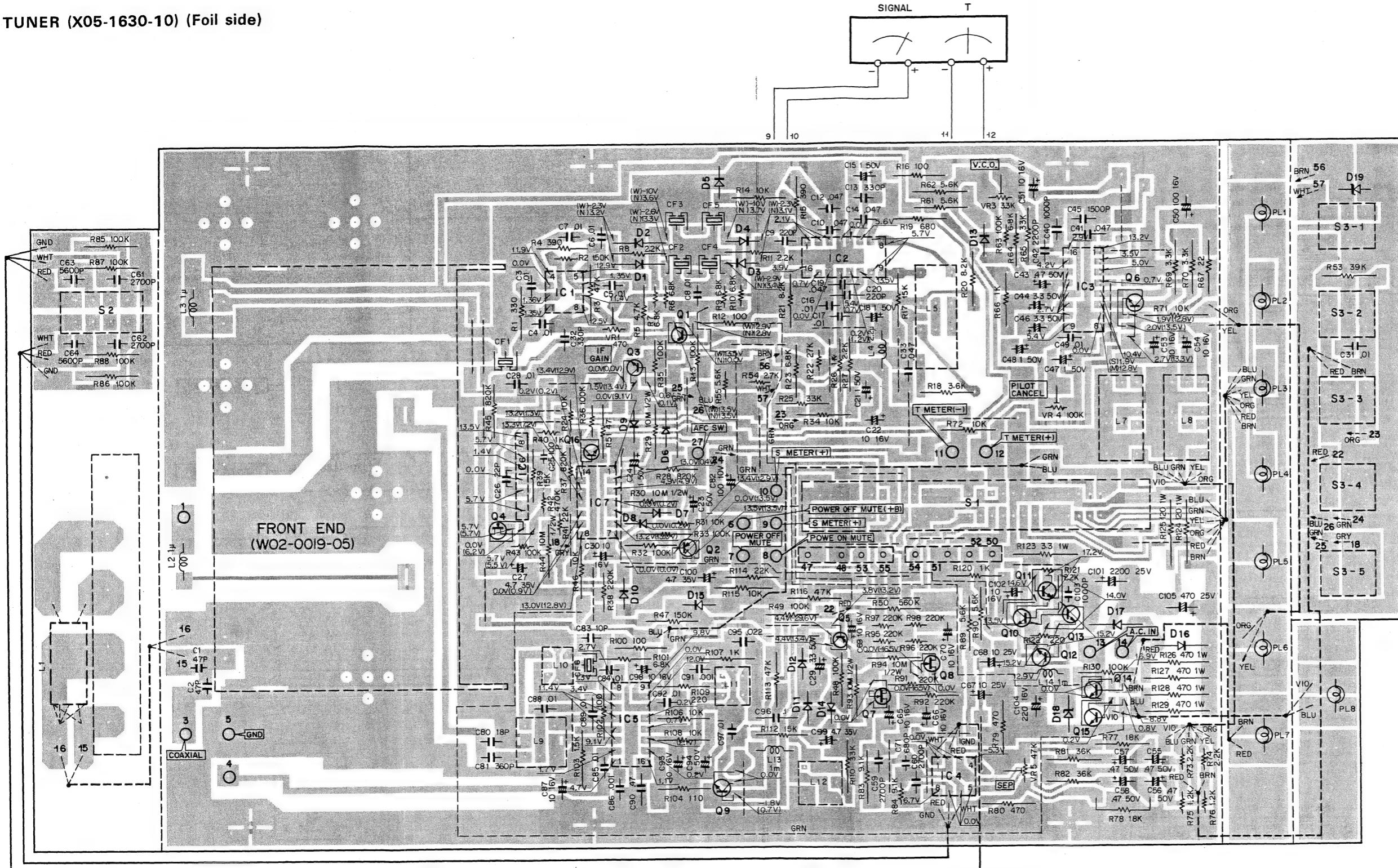


**KR-9050**

**KR-9050 KR-9050**

**PC BOARD**

▼ TUNER (X05-1630-10) (Foil side)



Q1,2,5: 2SA733A(Q,P)  
 Q3,6,9,10,  
     12,13,15,16: 2SC945(Q,P,K)  
 Q4,7,8: 2SK163 or  
     2SK117 (Y,GR,  
 Q11: 2SD330(E,F)

Q14: 2SC1222(U)  
D1,2: 1N60  
D3~15: 1S1555 or 1S2076  
D16,17: W06B  
D18: XZ-127  
D19: YZ-040B

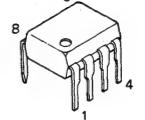
IC1: LA1222  
 IC2: HA11225  
 IC3: HA11223W  
 IC4: NJM4558D(A.B)  
 IC5: LA1240 or HA119  
 IC6: HA1457

IC7:  
MC14069UBC

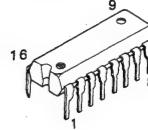
or  
CP

CP

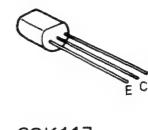
LA1222  
NJM4558D



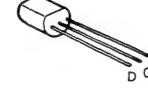
HA11225  
HA11223W  
LA1240



2SA733A  
2SC945  
2SC1222



2SK117  
2SK163



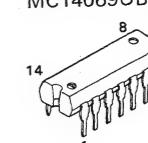
2SD330



HATHAWAY

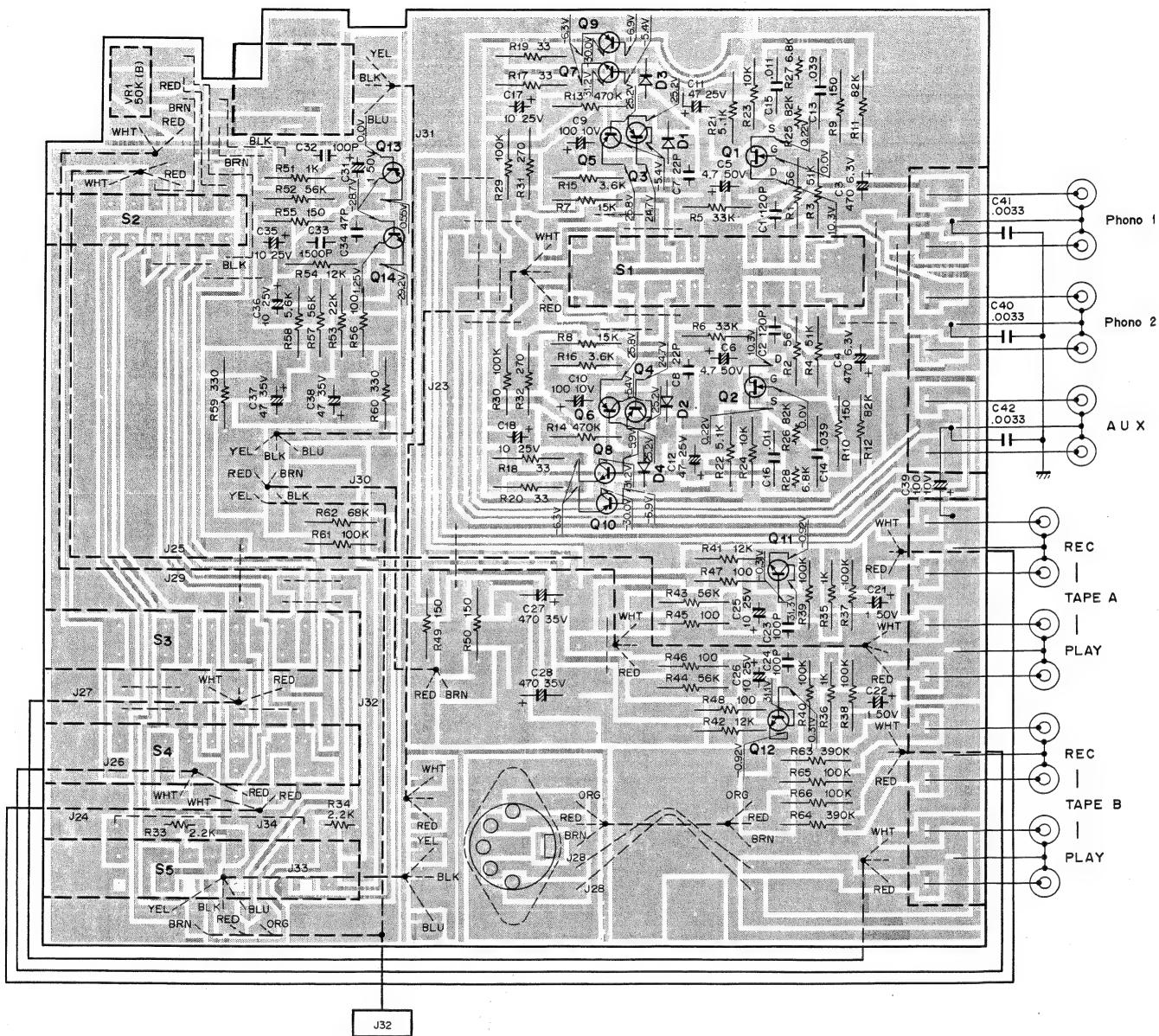


TC4069UB



## PC BOARD

## ▼ PREAMP (X08-1 710-10) (Foil side)



Q1,2: 2SK163(K,L) or  
 2SK68A(L,M,N)  
 Q3~6,9,10: 2SB725(Q,R) or  
 2SA1023(P,K)  
 Q7,8: 2SD767(Q,R) or  
 2SC2378(P,K)  
 Q11,12,14: 2SC1845(F,E)  
 Q13: 2SA992(F,E)  
 D1~4: 1S2076 or  
 1S1555

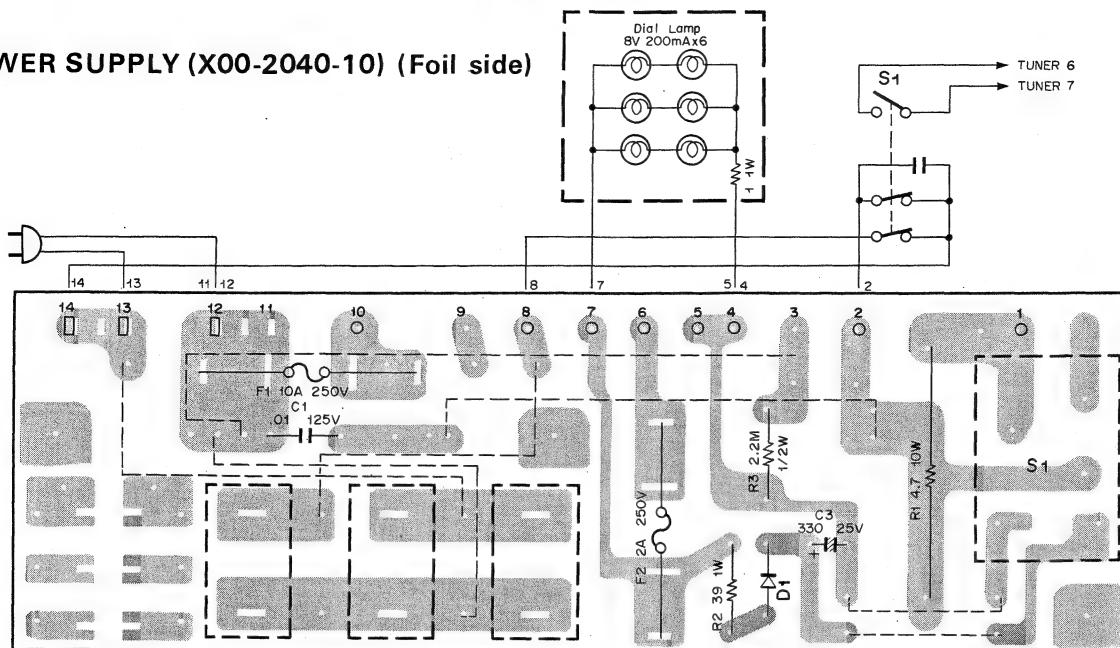
2SA992  
 2SA1023  
 2SB725  
 2SC1845  
 2SC2378  
 2SD767

2SK163  
2SK68A

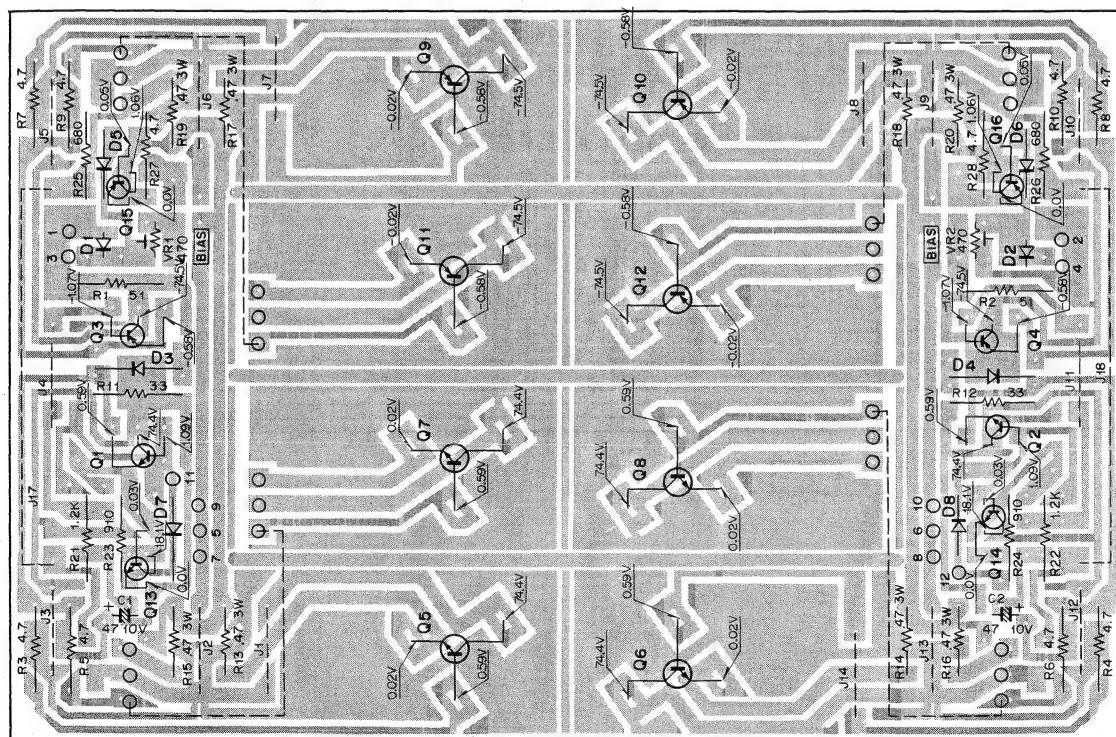


**PC BOARD**

▼ POWER SUPPLY (X00-2040-10) (Foil side)



▼ POWER AMP (X07-1690-00) (Foil side)



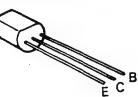
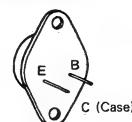
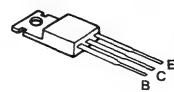
Q1,2: 2SD760(B,C)  
Q3,4: 2SB720(B,C)  
Q5~8: 2SC2607(O,Y)  
Q9~12: 2SA1116(O,Y)  
Q13,14: 2SC1890(E,F)

Q15,16: 2SA733A(R,Q)  
D1,2: STV-4H(W)  
D3,4,7,8: 1S2076A  
D5,6: YZ-040B

2SB720  
2SD760

2SA1116  
2SC2607

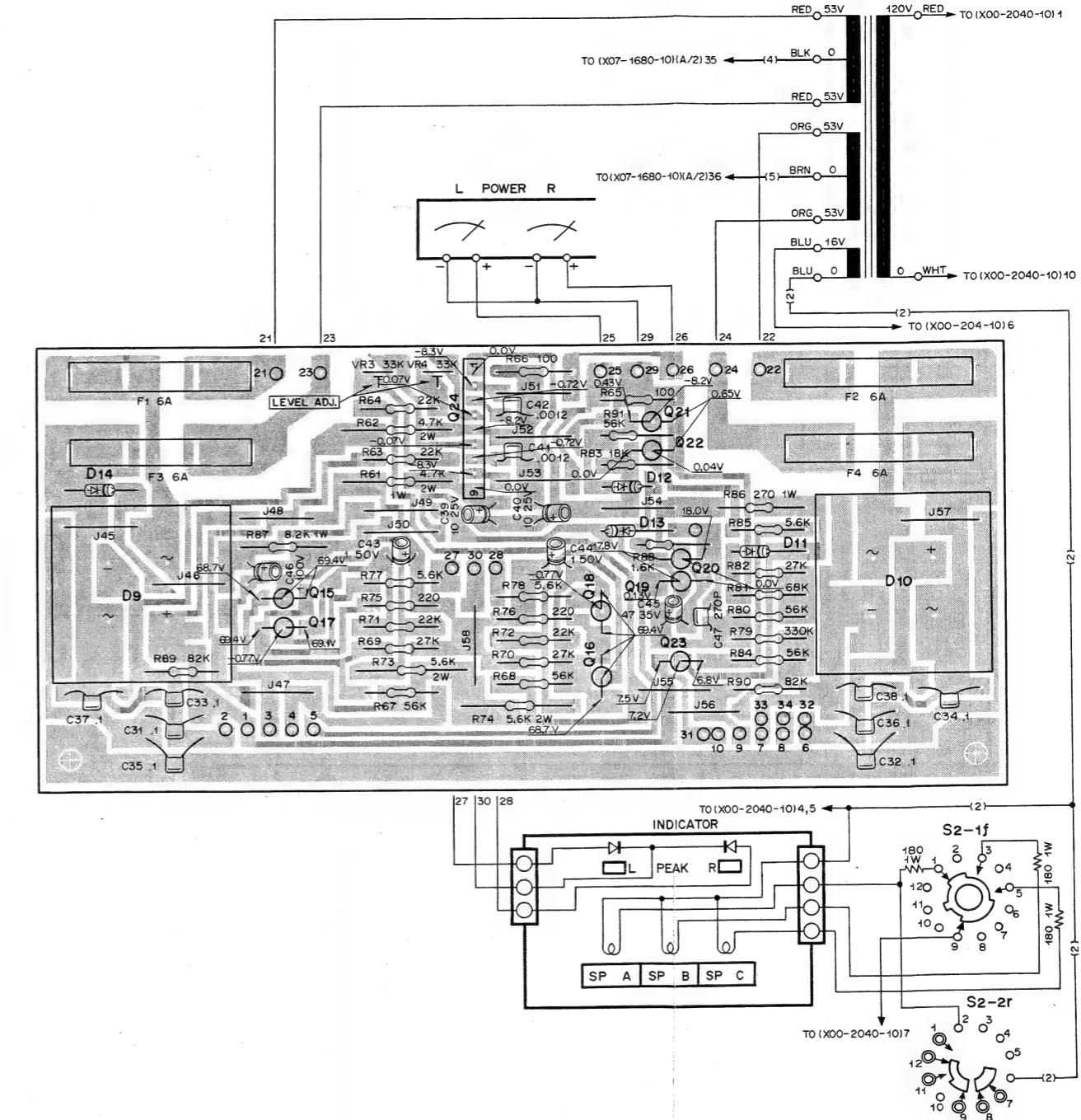
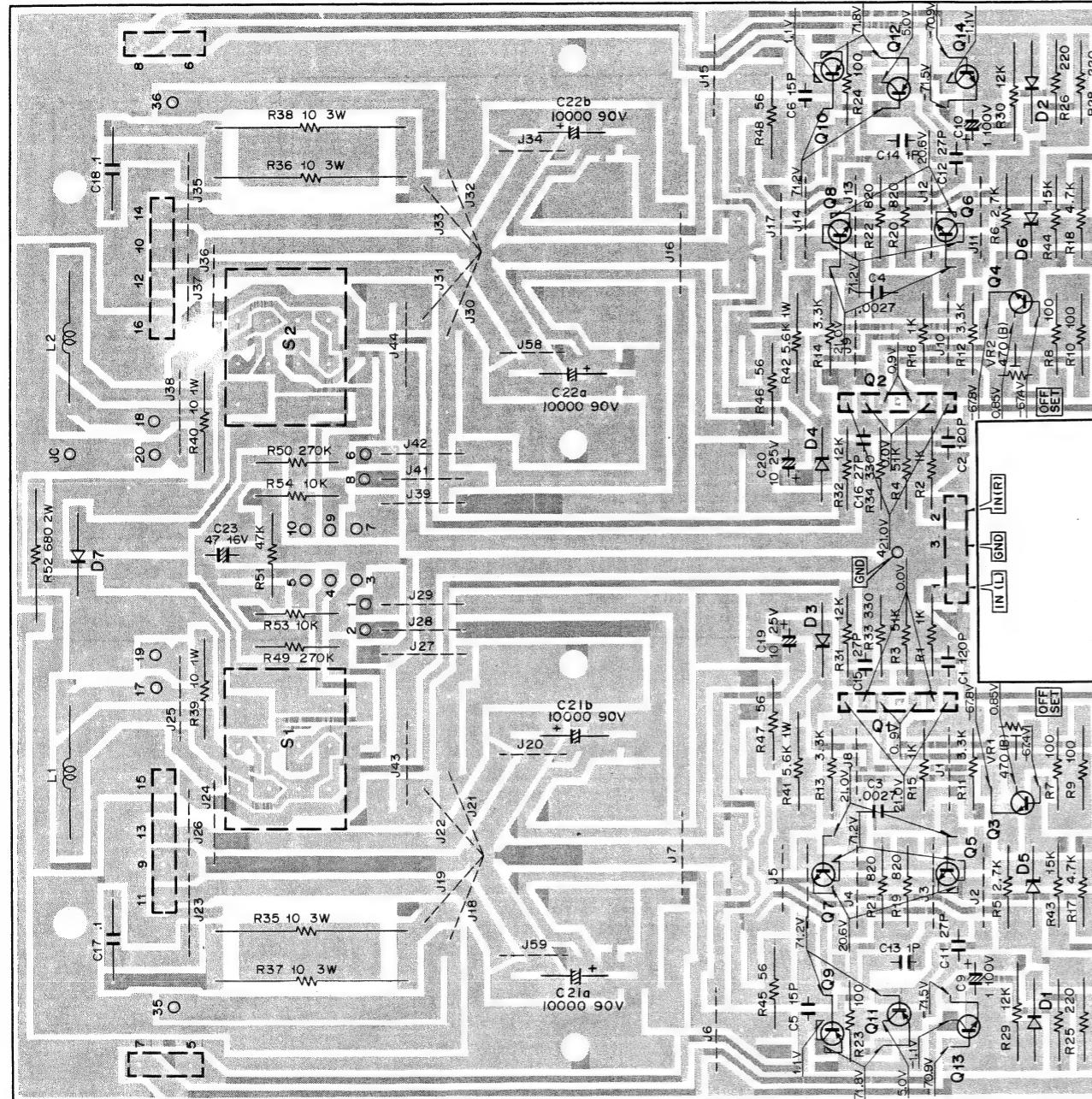
2SA733A  
2SC1890



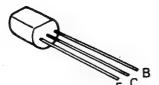
**PC BOARD**

▼ POWER AMP (X07-1680-10) (A/2)(Foil side)

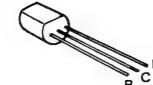
(B/2)(Component side)



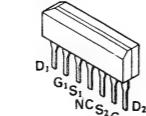
2SC1890A 2SA893  
2SC1890 2SC945  
2SA733A



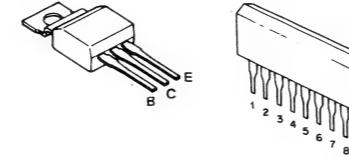
2SA850



2SK150A  
μPA68H



2SB718  
2SD758



TA731

Q1,2:

2SK150A (GR,BL)

Q23:

2SA850(E)

$\mu$ PA68H (L.M)

Q24: TA7318P

Q3,4: 2SC1890A(E,F)

D1.2,11,12: 1S2076 or  
D2.4: 5Q481-84

Q5~8,22: 2SC1890(E,F)

D3.4: EQA01-24  
DE 6: XZ060

Q9~12: 2SB718(B,C)  
Q13~14: 2SD7E8(B,C)

D5,6: XZ060  
D7 14: W06B

Q13,14: ZSD758(B,C)  
Q15,16,20,21: 2SA733(Ω B)

D7.14: WOOD  
D9.10: M4C-51-12\*1

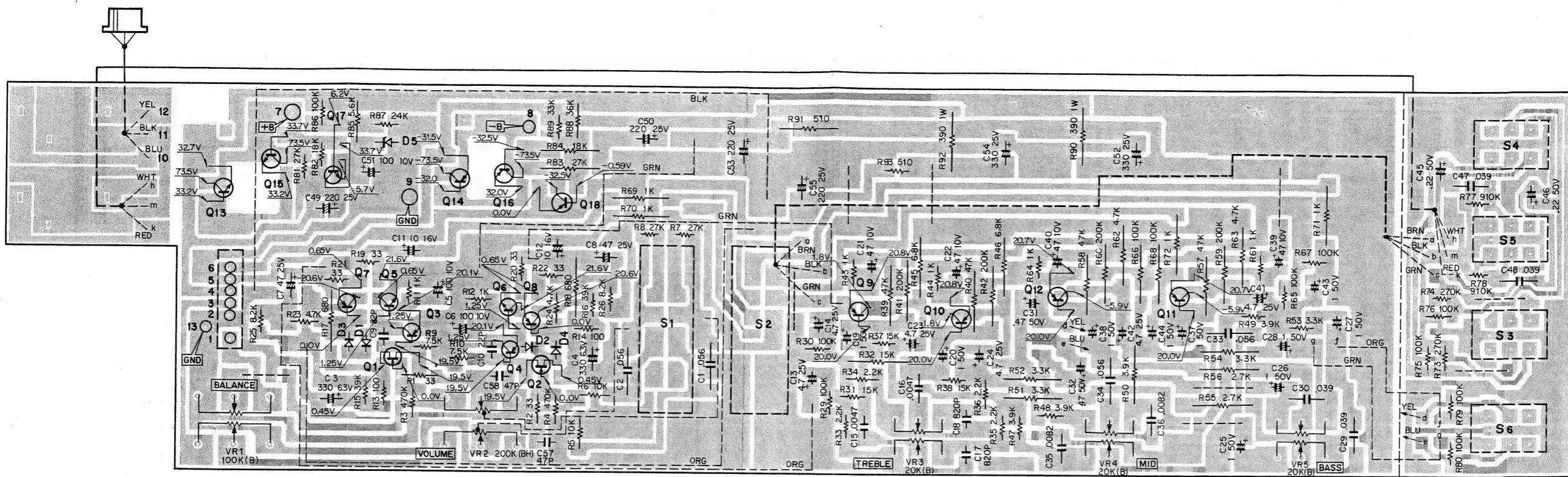
Q15,16,20,21: 2SA733(E,R)  
Q17,18: 2SA893(E,F)

D13: 1S2076A

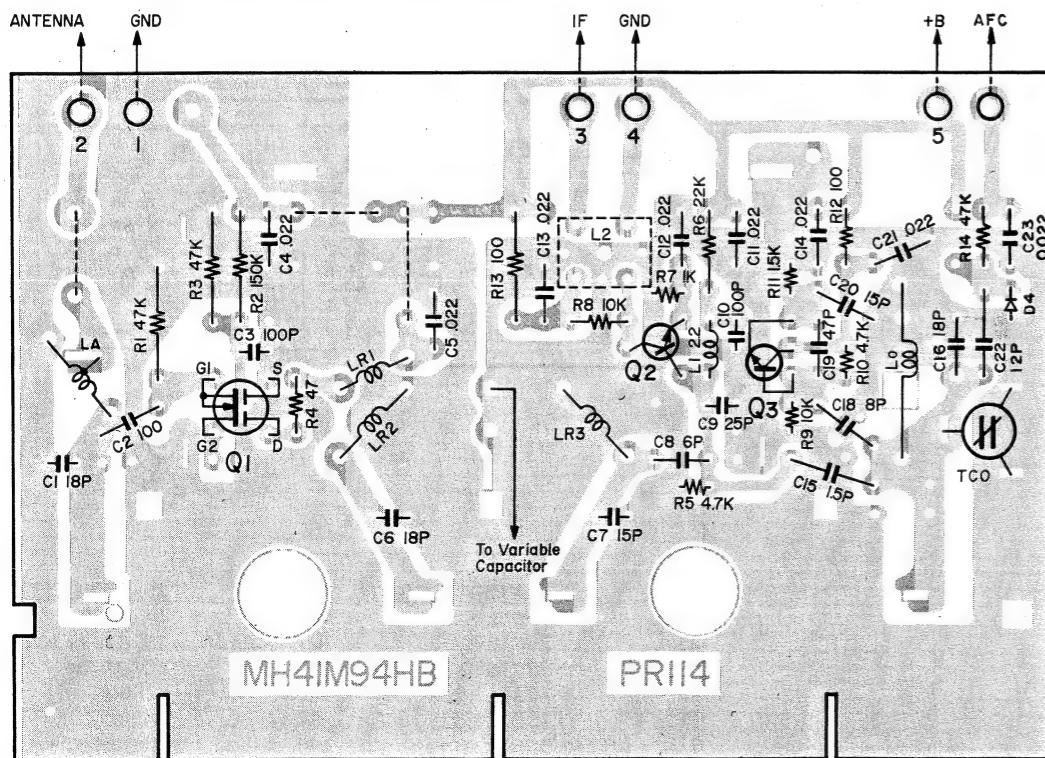
Q19: 2SC945(Q,R)

## PC BOARD

## ▼ CONTROL (X11-1550-10) (Foil side)



## ▼ FRONT END (W02-0019-05) (Foil side)



Q1: 3SK45B  
 Q2: 2SC535  
 Q3: 2SC461B  
 D1: 1S2236

Q1,2: 2SK68(M) or 2SK117(GR)  
 Q3,4,7~12: 2SA872(E)  
 Q5,6: 2SC1775(E)  
 Q13: 2SD330

Q14: 2SB514  
 Q15,17: 2SC1890(E)  
 Q16,18: 2SA893(E)  
 D1~4: 1S1555  
 D5: EQA01-O6R



2SA872  
 2SA893  
 2SC1775  
 2SC1890

2SB514  
 2SD330

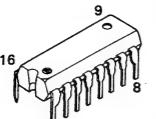




HIGH SPEED DC ST

2SA640 2SC1439  
2SA733A 2SC1509  
2SA750 2SC1735  
2SA777 2SC1775  
2SA872 2SC1775A  
2SA893 2SC1890  
2SA992 2SC1980  
2SB725 2SC2008  
2SC945 2SC2089  
2SC1222 2SD767

HA11223W  
HA11225  
HA1197  
LA1240



HA1457



2SA794

2SA850

TC4069UBP  
MC14069UBCP



2SA1116

2SC2607

C (Case)



2SB507V-AL

2SB514

2SB720

2SC1419

2SD330

2SD313V-AL

2SD760

2SB718



2SK68

2SK105

2SK117

2SK163

2SK150A  
μPA68H



LA1222

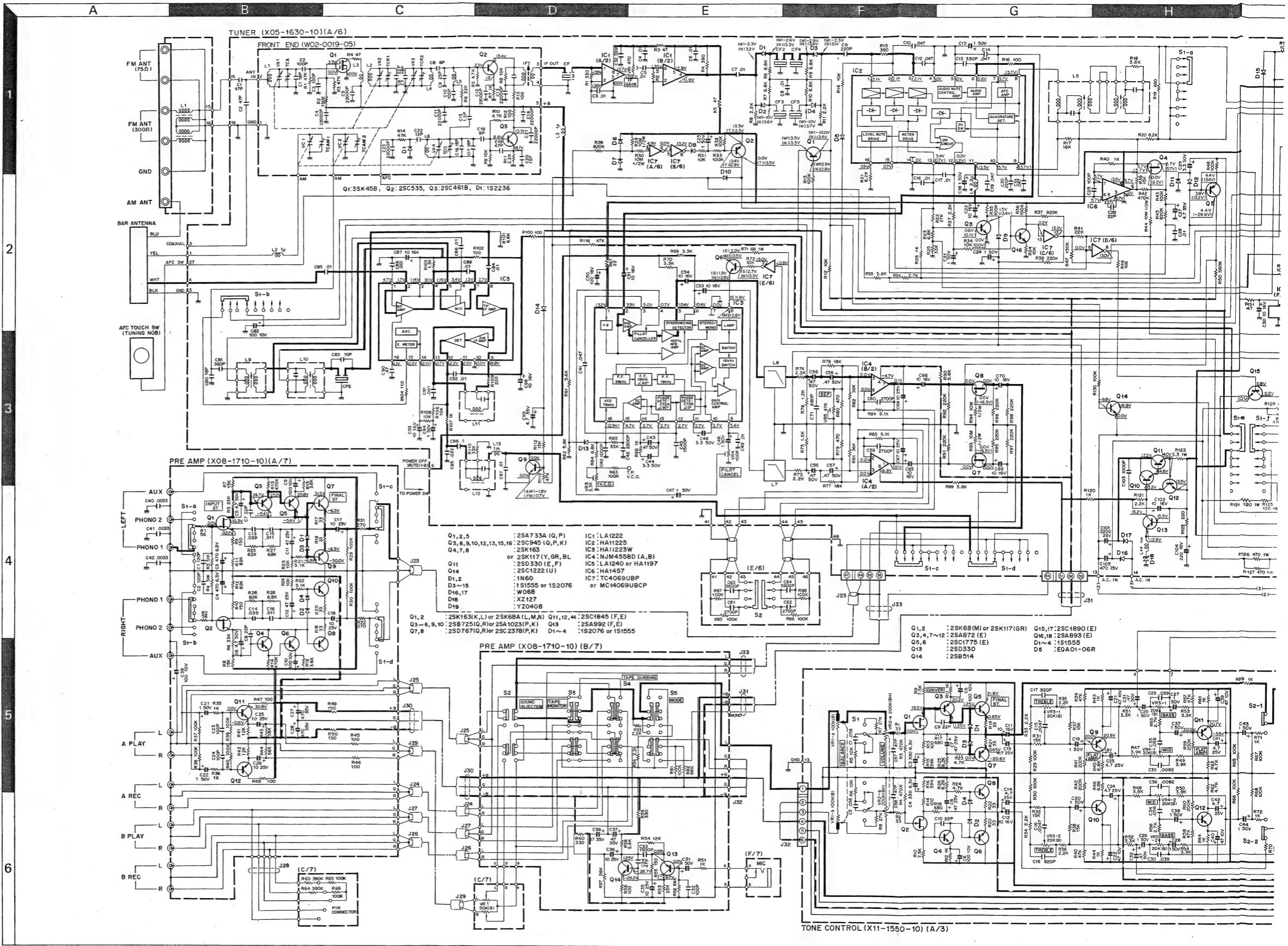
NJM4558D

NJM4559D

5

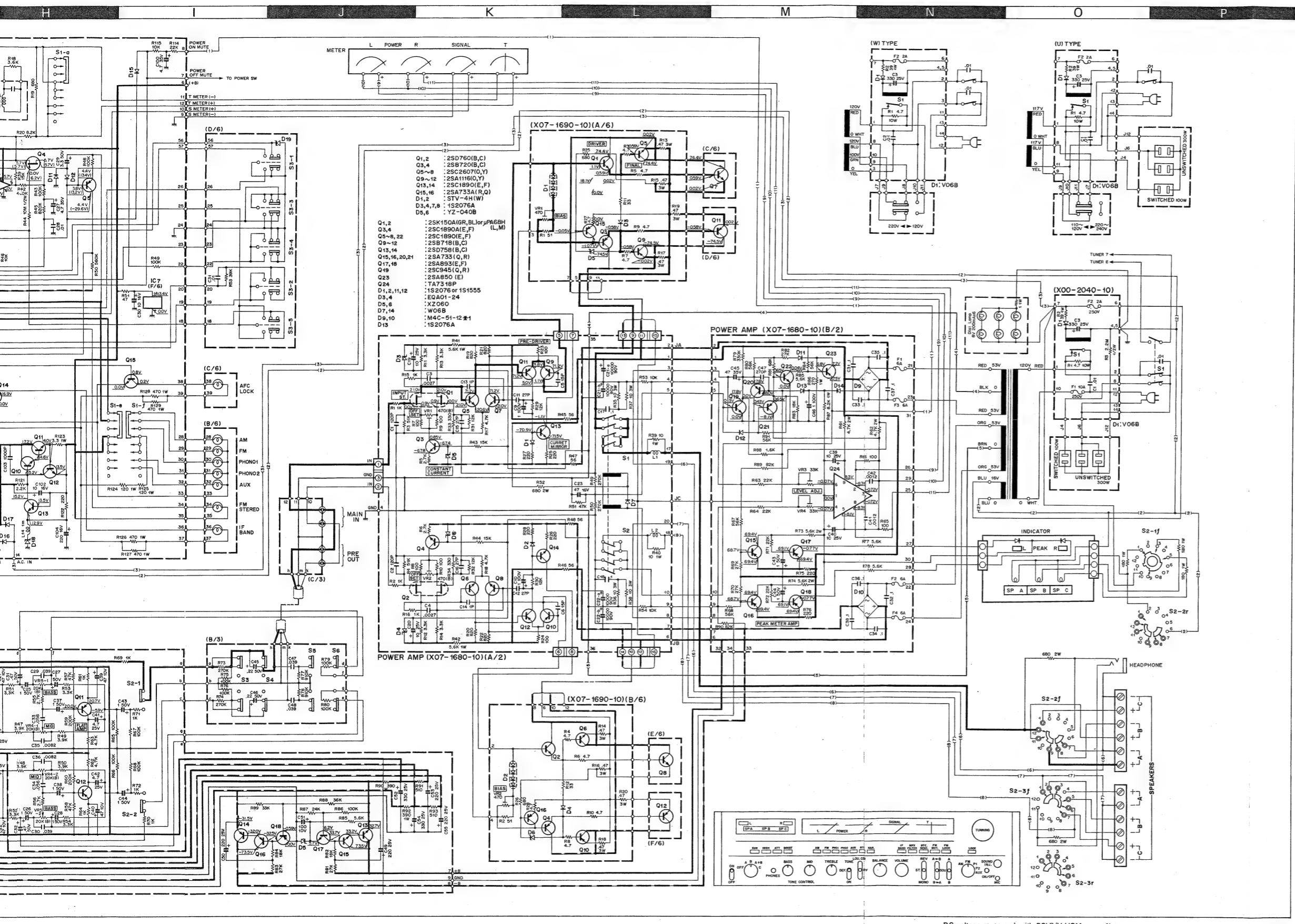
8

1



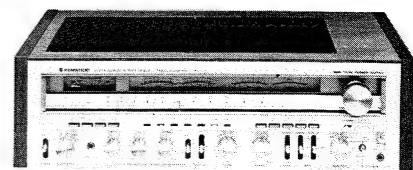
# HIGH SPEED DC STEREO RECEIVER

# KR-9050



DC voltage measured with 20kΩ/V VOM.

Note:  
Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.



## POWER AMPLIFIER SECTION

**Power Output**

200 watts\* per channel, minimum RMS both channels driven, at 8 ohms from 20 to 20,000 Hz with no more than 0.02% total harmonic distortion.

**Both Channels Driven**  
into 8Ω at 1,000 Hz ..... 210W + 210W  
into 4Ω at 1,000 Hz ..... 250W + 250W  
**Dynamic Power Output** ..... 600W at 8Ω  
**Total Harmonic Distortion** (20 Hz to 20,000 Hz from AUX)  
rated power into 8Ω ..... 0.02%  
1W power into 8Ω ..... 0.007%  
Intermodulation Distortion (60 Hz : 7 kHz = 4 : 1 SMPTE)  
rated power into 8Ω ..... 0.0045%  
1W power into 8Ω ..... 0.006%

**Slew Rate** ..... ±110V/sec  
**Rise Time** ..... 0.95 μsec  
**Frequency Response** ..... DC to 280,000 Hz -3 dB  
**Signal to Noise Ratio**  
(A weighted) ..... 115 dB

**Damping Factor** ..... 50

(20 to 20 kHz at 8Ω) ..... 50

**Input Sensitivity/Impedance** ..... 1V/50 kΩ

**PRE AMPLIFIER SECTION**

**Input Sensitivity/Impedance**

**PHONO 1, 2** ..... 2.5 mV/50 kΩ  
**AUX and TAPE** ..... 200 mV/50 kΩ  
**MIC** ..... 2.2 mV/50 kΩ

**Signal to Noise Ratio (A weighted)**

**PHONO 1, 2** ..... 85 dB for 2.5 mV input  
91 dB for 5.0 mV input

**AUX and TAPE** ..... 110 dB for 200 mV input

**MIC** ..... 74 dB for 2.2 mV input

**Maximum Input Level**

at 1,000 Hz ..... 260 mV(RMS), T.H.D. 0.02%

**Frequency Response**

**PHONO RIAA**

Standard Curve ..... 20 Hz to 20,000 Hz ±0.2 dB

**AUX and TAPE** ..... 5 Hz to 210,000 Hz -3 dB

**Tone Control**

Bass ..... ±12 dB at 100 Hz

(50 Hz Boost) ..... ±10 dB at 50 Hz

Mid ..... ±10 dB at 800 Hz

Treble ..... ±12 dB at 10 kHz

**Loudness Control**

(VOL. -30 dB) 1 ..... +8 dB at 100 Hz

2 ..... +5 dB at 100 Hz

**Subsonic Filter** ..... 18 Hz 6 dB/oct

**High Filter** ..... 7 kHz 6 dB/oct

**Output Level/Impedance**

**TAPE REC OUT (Pin)** ..... 200 mV/300Ω

**TAPE REC OUT (DIN)** ..... 30 mV/50 kΩ

**PRE OUT** ..... 10V/1 kΩ

**FM TUNER SECTION**

**Usable Sensitivity** ..... 9.8 dBf (1.7 μV)

50 dB Quieting Sensitivity

Mono ..... 14.1 dBf (2.8 μV)

Stereo ..... 36.1 dB (35 μV)

**Stereo Sensitivity**

position 1 (S/N 40 dB) ..... 25.2 dBf (10 μV)

position 2 (S/N 60 dB) ..... 45.2 dBf (100 μV)

**Signal to Noise Ratio at 65 dBf**

Mono ..... 83 dB

Stereo ..... 76 dB

77 dB at 10 mV input

**Total Harmonic Distortion**

Mono ..... 0.07%

Stereo ..... 0.1%

**Frequency Response** ..... 20 Hz to 15,000 Hz ±0.5 dB

**Capture Ratio** ..... 1.0 dB

**Image Rejection Ratio** ..... 105 dB

**Spurious Response Ratio** ..... 115 dB

**IF Response Ratio** ..... 105 dB

**Alternate Channel Selectivity**

WIDE ..... 35 dB at 300 kHz

NARROW ..... 60 dB at 300 kHz

**AM Suppression Ratio** ..... 65 dB

**Stereo Separation Ratio** ..... 50 dB at 1,000 Hz

40 dB at 50 Hz to 10,000 Hz

**Subcarrier Product Ratio** ..... 73 dB

**Antenna Impedance** ..... 300Ω Balanced and 75Ω unbalanced

**FM Frequency Range** ..... 88 MHz to 108 MHz

**AM Tuner Section**

**Usable Sensitivity** ..... 10 μV (250 μV/m)

**Signal to Noise Ratio** ..... 55 dB

**Image Rejection** ..... 50 dB

**Selectivity** ..... 45 dB

**GENERAL**

**Power Consumption** ..... 1,200 watts at full power

**AC Outlet** ..... Switched 1. Unswitched 2.

**Dimensions** ..... W: 602 mm (23-1/16") H: 177 mm (6-31/32")

D: 465 mm (18-5/16")

Weight (Net) ..... 24.0 kg (52.9 lbs)

(Gross) ..... 26.0 kg (57.3 lbs)

\* Measured pursuant to Federal Trade Commission's Trade Rule on Power Output Claims for Amplifiers in U.S.A.

## PARTS LIST

See instructions at the end of the parts list.

Ref. No.	Parts No.	Description	Re-marks
参照番号	部品番号	部品名 / 規格	備考
<b>KR-9050 (UNIT)</b>			
1 2A	-	BOTTOM PLATE METALLIC FRAME CHASSIS	
2 2A	-	SUB PANEL REAR PANEL	
4 3B	-	HOLDER FASTENER MOUNTING HARDWARE	
5 1B	-	PCB HOLDER WIRE CRAMPER	
-	351-0003-14	DIAL CORD	
11 1A	A01-0352-02	CASE	*
12 3A	A20-1402-03	FRONT PANEL	*K
12 3A	A20-1402-03	FRONT PANEL	PU
12 3A	A20-1402-03	FRONT PANEL	MW
12 3A	A20-1402-03	FRONT PANEL	L
12 3A	A20-1403-03	FRONT PANEL	T
13 1A	A50-0059-02	SIDE PLATE (L)	*
14 1A	A50-0060-02	SIDE PLATE (R)	*
15 1A	A54-0169-02	WOOD TOP BOARD	*
-	B07-0235-04	ESCUOTHEON (LEVER)	
-	B07-0262-04	ESCUOTHEON (KNOB)	*
-	B07-0263-04	ESCUOTHEON (KNOB)	*
-	B07-0265-04	ESCUOTHEON (KNOB)	*
-	B46-0055-20	WARRANTY CARD	P
-	B46-0060-00	WARRANTY CARD	T
-	B46-0061-20	WARRANTY CARD	K
-	B46-0062-20	WARRANTY CARD	U
-	B46-0063-00	WARRANTY CARD	U
-	B50-1845-00	INSTRUCTION MANUAL	*K
-	B50-1846-00	INSTRUCTION MANUAL	PM
16 1A	B04-0065-02	MESH PLATE	*
16 1A	B04-0065-02	MESH PLATE	PU
16 1A	B04-0065-02	MESH PLATE	M
16 1A	B04-0066-02	MESH PLATE	WL
16 1A	B04-0066-02	MESH PLATE	
17 3A	B08-2018-04	INDICATOR	*
18 3A	B10-0244-04	FRONT GLASS	*
19 3B	B11-0002-03	FILTER	*
20 3A	B20-0442-03	DIAL CALIBRATIONS	*
21 3A	B21-0032-04	DIAL POINTER	*
22 3A	B30-0084-05	LAMP	*
23 3B	B30-0179-05	LAMP	*
24 3A	B30-0181-05	LED	*
25 3B	B31-0299-05	METER	*
26 3A	B38-0008-04	DISPLAY ASSY	*
27 2B	C54-3310-39	CERAMIC 0.01UF DC2KV	TW
27 2B	C54-3310-39	CERAMIC 0.01UF DC2KV	L
27 2B	C90-0145-05	FILM 0.01UF AC125V	K
27 2B	C91-0023-05	CERAMIC 0.01UF AC250V	UM
27 2B	C91-0072-05	FILM 0.01UF AC125V	P
-	D32-0075-04	STOPPER (P. VOLT. SELECT)	UM
-	D32-0075-04	STOPPER (P. VOLT. SELECT)	WL
28 2A, 3B	D15-0170-14	PULLEY	*
29 2B	D15-0171-13	PULLEY	
30 3B	D20-0147-04	DIAL SHAFT	*
31 1B	E04-0004-05	RECEPTACLE (FM ANT.)	TW
31 1B	E04-0004-05	RECEPTACLE (FM ANT.)	L

Ref. No.	Parts No.	Description	Re-marks
参照番号	部品番号	部品名 / 規格	備考
<b>KR-9050 (UNIT)</b>			
32 2B	E11-0060-15	PHONE JACK	
33 1B	E20-0813-05	TERMINAL BOARD	
34 1B	E30-0290-05	POWER CORD	KP
34 1B	E30-0515-05	POWER CORD	UM
34 1B	E30-0580-05	POWER CORD	W
34 1B	E30-0585-05	POWER CORD	L
34 1B	E30-0602-05	POWER CORD	T
35 2B	G01-0045-24	COIL SPRING	
36 3A	G01-0364-04	COIL SPRING	*
37 3A	G01-0365-04	COIL SPRING	*
38 2B, 3B	G10-0017-04	DUST SEET	
-	H01-3001-04	CARTON BOX	*K
-	H01-3001-04	CARTON BOX	UM
-	H01-3002-04	CARTON BOX	*P
-	H01-3003-04	CARTON BOX	*T
-	H01-3052-04	CARTON BOX	L
-	H10-1528-02	POLYSTYRENE FIXTURE	*
-	H10-1529-02	POLYSTYRENE FIXTURE	*
-	H20-0443-04	COVER	*M
-	H20-0449-04	COVER	PU
-	H20-0449-04	COVER	TW
-	H25-0078-04	BAG	L
-	H25-0078-04	BAG	KP
-	H25-0078-04	BAG	UM
-	H25-0078-04	BAG	T
-	J12-0010-04	SHORT PIN	
39 2A	J02-0101-05	FOOT	*
40 3B	J32-0249-04	BOSS	*
41 3A	J32-0250-04	BOSS	*
42 1B	J41-0024-15	POWER CORD BUSHING	TL
42 1B	J41-0033-05	POWER CORD BUSHING	KP
42 1B	J41-0033-05	POWER CORD BUSHING	UM
42 1B	J41-0033-05	POWER CORD BUSHING	W
43 3A	J90-0092-03	RAIL	*
44 3A	K23-0320-04	KNOB (TUNING)	*
45 3A	K23-0321-04	KNOB (SP. SEL. VOL. BAL.)	*
46 3A	K23-0322-04	KNOB (TONE)	*
47 3A	K23-0323-04	KNOB (MIC)	*
48 3A	K27-0070-04	KNOB (LEVER)	*
49 3A	K29-0307-04	KNOB (PUSH)	*
50 3A	K29-0308-04	KNOB (PUSH)	*
51 2A	L01-1741-05	POWER TRANSFORMER	KP
51 2A	L01-1742-05	POWER TRANSFORMER	*T
51 2A	L01-1745-05	POWER TRANSFORMER	UM
51 2A	L01-1745-05	POWER TRANSFORMER	M
51 2A	L01-1746-05	POWER TRANSFORMER	*W
51 2A	L01-1746-05	POWER TRANSFORMER	L
51 2A	L01-1746-05	POWER TRANSFORMER	*P
52 2A, 3B	N09-0293-05	SCREW (PULLEY)	
53 1B	N09-0303-05	SCREW	
54 1A	N09-0304-05	SCREW (MESH PLATE)	*
55 1A, 1B	N08-0127-05	DRESSED SCREW (CASE)	
56 1B	N08-0128-35	DRESSED SCREW (GND)	
57 3A	N14-0074-05	NUT	
58 3A	N29-0033-05	FASTENER	
R1	R47-5418-15	FL-PROOF RS180	J 3A
R2	R47-5568-15	FL-PROOF RS680	J 3D

Ref. No.	Parts No.	Description	Re-marks
参照番号	部品番号	部品名 / 規格	備考
<b>POWER SUPPLY (X00-2040)</b>			
59 3B	S90-0001-05	REMOTE SW. SHAFT	
60 3B	S90-0015-05	REMOTE WIRE	*
61 2A	S33-4012-05	LEVER SWITCH	S1 KP
61 2A	S33-4013-05	LEVER SWITCH	S1 TW
61 2A	S33-4013-05	LEVER SWITCH	S1 L
61 2A	S33-4014-05	LEVER SWITCH	S1 UM
62 2B	S01-3026-05	ROTARY SWITCH	S2
-	T90-0202-05	ANTENNA (FM)	
63 1B	T90-0083-05	ANTENNA (AM)	
64 1A	X00-2040-10	POWER SUPPLY PCB ASSY	*K
64 1A	X00-2040-51	POWER SUPPLY PCB ASSY	*T
64 1A	X00-2040-61	POWER SUPPLY PCB ASSY	*W
64 1A	X00-2040-81	POWER SUPPLY PCB ASSY	*U
64 1A	X00-2040-81	POWER SUPPLY PCB ASSY	M
64 1A	X00-2041-01	POWER SUPPLY PCB ASSY	*P
65 2B, 3B	X05-1630-11	TUNER PCB ASSY	MT
65 2B, 3B	X05-1630-11	TUNER PCB ASSY	WL
65 2B, 3B	X05-1630-10	TUNER PCB ASSY	*K
65 2B, 3B	X05-1630-10	TUNER PCB ASSY	P
65 2B, 3B	X05-1630-11	TUNER PCB ASSY	*U
66 2B	X07-1680-61	POWER AMP PCB ASSY	
66 2B	X07-1680-61	POWER AMP PCB ASSY	WL
66 2B	X07-1680-10	POWER AMP PCB ASSY	*K
66 2B	X07-1680-10	POWER AMP PCB ASSY	PU
66 2B	X07-1680-10	POWER AMP PCB ASSY	M
66 2B	X07-1680-61	POWER AMP PCB ASSY	*T
66 2B	X07-1680-61	POWER AMP PCB ASSY	
67 1A	X07-1690-10	POWER AMP PCB ASSY	*
68 2B, 3B	X08-1710-10	PRE AMP PCB ASSY	*
69 1B, 2B	X11-1550-10	TONE AMP PCB ASSY	*
<b>POWER SUPPLY (X00-2040)</b>			
C1	C90-0145-05	CAPACITOR 0.01UF AC125V	K
C1	C91-0023-05	CERAMIC 0.01UF AC250V	UM
C1	C91-0072-05	FILM 0.01UF AC125V	P
C3	C24-1433-71	ELECTRO 330UF 25WV	
-	E03-0008-05	AC OUTLET	PK
-	E03-0008-05	AC OUTLET	U
F1	F05-1032-05	FUSE (10A)	KP
F2	F05-2021-05	FUSE (2A)	KP
F2	F05-2023-05	FUSE (2A)	UM
-	J13-0055-05	FUSE HOLDER</	

**KR-9050 KR-9050**

**PARTS LIST**

Ref. No.	Parts No.	Description		Remarks 備考
		部品番号	部品名／規格	
L2 , 3	L40-1092-44	INDUCTOR	1UH	
L4	L40-2292-44	INDUCTOR	2.2UH	
L5	L30-0322-05	IFT	(FM)	*
L7 , 8	L79-0071-15	FILTER		
L9	L32-0205-15	OSCILLATING COIL (AM)		
L10	L30-0321-05	IFT (AM)		*
L11	L30-0284-05	IFT (AM)		*
L12	L79-0073-05	FILTER		*
L13 , 14	L40-1021-45	INDUCTOR	1MH	
R5	R43-1247-05	FL-PROOF RD47	J 2E	
R18	R48-2360-14	RN	3.6K G 2E	
R29 , 30	R40-8310-68	RC	10M M 2H	
R44	R40-8310-68	RC	10M M 2H	
R51	R43-1247-05	FL-PROOF RD47	J 2E	
R67	R43-1222-05	FL-PROOF RD22	J 2E	
R71	R47-6448-05	FL-PROOF RS68	J 3A	
R93 , 94	R40-8310-68	RC	10M M 2H	
R100	R43-1210-15	FL-PROOF RD100	J 2E	
R123	R47-6433-95	FL-PROOF RS3.3	J 3A	
R124, 125	R47-6412-15	FL-PROOF RS120	J 3A	
R126-129	R47-6447-15	FL-PROOF RS470	J 3A	
VR1	R12-0065-05	TRIMMING POT.	470	
VR3	R12-1041-05	TRIMMING POT.	3.3K	
VR4	R12-5030-05	TRIMMING POT.	100K	
VR5	R12-3046-05	TRIMMING POT.	47K	
105 2B	S90-0016-05	SLIDE SWITCH	S1	*
106 1B	S31-2048-05	SLIDE SWITCH	S2	
107 3B	S42-5013-05	PUSH SWITCH	S3-S7	*
D1 , 2	V11-0051-05	1N60		
D3 , -15	V11-0076-05	1S1555		
D16 , 17	V11-0295-05	W06B		
D18	V11-4101-80	XZ-127		
D19	V11-4104-60	YZ-040B		
IC1	V30-0215-05	LA1222		
IC2	V30-0321-10	HA11225		
IC3	V30-0266-20	HA11223W		*
IC4	V30-0217-05	NJM4558D(A, B)		
IC5	V30-0245-10	LA1240		
IC6	V30-0264-10	HA1457		
IC7	V30-0297-20	TC4069UBP		
Q1 , 2	V01-0733-40	2SA733A(Q, P)		
Q3	V03-0945-40	2SC945(Q, P, K)		
Q4	V09-0126-60	2SK117(Y, GR, BL)		
Q5	V01-0733-40	2SA733A(Q, P)		
Q6	V03-0945-40	2SC945(Q, P, K)		
Q7 , 8	V09-0126-60	2SK117(Y, GR, BL)		
Q9 , 10	V03-0945-40	2SC945(Q, P, K)		
Q11	V04-0330-20	2SD330(E, F)		
Q12 , 13	V03-0945-40	2SC945(Q, P, K)		
Q14	V03-0416-05	2SC1222(U)		
Q15 , 16	V03-0945-40	2SC945(Q, P, K)		
108 2B	W02-0019-05	FM FRONT END		
<b>POWER AMP (X07-1680)</b>				
109 2B	C90-0403-05	ELECTRO 1000UF	90WV	*
109 2B	C90-0403-05	C21, 22		*
C1 , 2	C71-1712-15	CERAMIC 120PF	J	
C3 , 4	C46-1727-25	MYLAR 0.0027UF	J	
C5 , 6	C71-1715-05	CERAMIC 15PF	J	
C9 , 10	C24-2010-51	ELECTRO 1UF	100WV	
C11 , 12	C71-1727-05	CERAMIC 27PF	J	
<b>POWER AMP (X07-1690)</b>				
C1 , 2	C24-1047-61	ELECTRO 47UF	10WV	

Ref. No.	Parts No.	Description		Remarks 備考
		部品番号	部品名／規格	
C13 , 14	C71-1701-01	CERAMIC 1PF	C	
C15 , 16	C71-1727-05	CERAMIC 27PF	J	
C17 , 18	C46-2010-47	MYLAR 0.1UF	M	
C19 , 20	C24-1410-61	ELECTRO 10UF	25WV	
C23	C26-1247-67	NP-ELEC 47UF	16WV	
C31 , -38	C91-0039-05	MYLAR 0.1UF	J	
C39 , 40	C24-1410-61	ELECTRO 10UF	25WV	
C41 , 42	C46-1712-26	MYLAR 0.0012UF	K	
C43 , 44	C24-1710-51	ELECTRO 1UF	50WV	
C45	C25-6547-67	ELECTRO 47UF	35WV	
C46	C24-2010-51	ELECTRO 1UF	100WV	
C47	C71-1727-15	CERAMIC 270PF	J	
110 2B	F05-6024-05	FUSE (6A)	F1-4	KP
110 2B	F05-6024-05	FUSE (6A)	F1-4	UM
110 2B	F05-6322-05	FUSE (6.3A)	F1-4	TW
110 2B	F05-6322-05	FUSE (6.3A)	F1-4	L
111 2B	J13-0055-05	FUSE HOLDER		
L1 , 2	L39-0085-05	COIL		
R5 , 6	R43-1227-25	FL-PROOF RD2.7K	J 2E	
R17 , 18	R43-1247-25	FL-PROOF RD4.7K	J 2E	
R23 , 24	R43-1210-15	FL-PROOF RD100	J 2E	
R25 , 28	R43-1222-15	FL-PROOF RD220	J 2E	
R29 , 30	R47-1412-35	FL-PROOF RS12K	J 3A	
R35 , -38	R47-1610-05	FL-PROOF RS10	J 3F	
R39 , 40	R47-1410-05	FL-PROOF RS10	J 3A	
R41 , 42	R47-1456-25	FL-PROOF RS5.6K	J 3A	
R43 , 44	R47-1415-35	FL-PROOF RS15K	J 3A	
R45 , -48	R43-1256-05	FL-PROOF RD56	J 2E	
R52	R47-1568-15	FL-PROOF RS680	J 3D	
R61 , 62	R47-1547-25	FL-PROOF RS4.7K	J 3D	
R73 , 74	R47-1556-25	FL-PROOF RS5.6K	J 3D	
R86	R47-1427-15	FL-PROOF RS270	J 3A	
R87	R47-1482-25	FL-PROOF RS8.2K	J 3A	
VR1 , 2	R12-0058-05	TRIMMING POT.	470	
VR3 , 4	R12-3054-05	TRIMMING POT.	47K	*
S1 , 2	S51-4034-05	RELAY		
D1 , 2	V11-0271-05	IS2076		
D3 , 4	V11-0416-05	EQA01-24		
D5 , 6	V11-4101-20	XZ-060		
D7	V11-0295-05	W06B		
D9 , 10	V11-2101-40	M4C-51-12*1		
D11 , 12	V11-0271-05	IS2076		
D13	V11-0273-05	IS2076A		
D14	V11-0295-05	W06B		
Q1 , 2	V09-0137-50	2SK150A(GR, BL)		
Q3 , 4	V03-1890-50	2SC1890A(E, F)		
Q5 , 6	V01-0733-40	2SA733A(Q, P)		
Q7 , 8	V03-0945-40	2SC945(Q, P, K)		
Q9 , 10	V03-0945-40	2SC945(Q, P, K)		
Q11	V04-0330-20	2SD330(E, F)		
Q12 , 13	V03-0945-40	2SC945(Q, P, K)		
Q14	V03-0416-05	2SC1222(U)		
Q15 , 16	V03-0945-40	2SC945(Q, P, K)		
108 2B	W02-0019-05	FM FRONT END		
<b>POWER AMP (X07-1680)</b>				
109 2B	C90-0403-05	ELECTRO 1000UF	90WV	*
109 2B	C90-0403-05	C21, 22		*
C1 , 2	C71-1712-15	CERAMIC 120PF	J	
C3 , 4	C46-1727-25	MYLAR 0.0027UF	J	
C5 , 6	C71-1715-05	CERAMIC 15PF	J	
C9 , 10	C24-2010-51	ELECTRO 1UF	100WV	
C11 , 12	C71-1727-05	CERAMIC 27PF	J	
<b>POWER AMP (X07-1690)</b>				
C1 , 2	C24-1047-61	ELECTRO 47UF	10WV	

Ref. No.	Parts No.	Description		Remarks 備考
		部品番号	部品名／規格	
-	E02-0004-05	SOCKET		
-	F01-0306-04	HE		

## PARTS LIST

Fig. No.	Parts No.
M3 x 6	N30-3006-46
M3 x 6 BLK	N30-3006-45
M3 x 6 (F-Tap) BLK	N88-3006-45
M3 x 8 BLK	N30-3008-45
M3 x 8 (Br-Tap)	N87-3008-46
M3 x 8 (F-Tap)	N88-3008-46
M3 x 8 (Bi-Tap) BLK	N89-3008-45
M3 x 8 (Tp-T)	N91-3008-46
M3 x 10 (Br-Tap)	N87-3010-46
M3 x 10 (F-Tap)	N88-3010-46
M4 x 10 (Br-Tap)	N87-4010-46

## ⑦ Abbreviations

- \* Abbreviations of capacitors (Parts No. with initial letter "C")
  - ELECTRO ..... Electrolytic capacitor
  - LL-ELEC ..... Low leak electrolytic capacitor
  - NP-ELEC ..... Non-pole electrolytic capacitor
  - MICA ..... Mica capacitor
  - POLYSTY ..... Polystyrene capacitor
  - MYLAR ..... Mylar capacitor
  - CERAMIC ..... Ceramic capacitor
  - TANTAL ..... Tantalum capacitor
  - MF ..... Metallized film capacitor
  - OIL ..... Oil capacitor
- The unit "UF" is used in lieu of " $\mu F$ ".

## \* Abbreviations of resistors (Parts No. with initial letters "R").

- RC ..... Carbon composition resistor
  - RD ..... Carbon film resistor
  - FL-PROOF RD ..... Flame-proof carbon film resistor
  - RW ..... Wire wound power resistor
  - FL-PROOF RS ..... Flame-proof metal oxide film resistor
  - RN ..... Metal film resistor
  - 2B ..... Rated wattage 1/8W
  - 2E ..... Rated wattage 1/4W
  - 2H ..... Rated wattage 1/2W
  - 3A ..... Rated wattage 1W
  - 3D ..... Rated wattage 2W
  - 3F ..... Rated wattage 3W
  - 3G ..... Rated wattage 4W
  - 3H ..... Rated wattage 5W
- All resistor values are indicated with the unit ( $\Omega$ ) omitted.

## \* Abbreviations common to capacitors and resistors.

- C .....  $\pm 0.25$  pF (Used for capacitors only)
  - D .....  $\pm 0.5$  pF (Used for capacitors only)
  - F .....  $\pm 1\%$
  - G .....  $\pm 2\%$
  - J .....  $\pm 5\%$
  - K .....  $\pm 10\%$
  - M .....  $\pm 20\%$
  - Z .....  $+80\%, -20\%$  (Used for capacitors only)
  - P .....  $+100\%, -0\%$  (Used for capacitors only)
- ⑧ Resistors RD (carbon composition resistors) are not listed in the parts list. For values, refer to the schematic diagram.

## INSTRUCTIONS FOR PARTS LIST

Ref. No.	Parts No.	Description	Remarks
11 1A	A01-0352-02	CASE	F
12 3A	A20-1402-03	FRONT PANEL	*
12 3A	A20-1402-03	FRONT PANEL	*K
12 3A	A20-1402-03	FRONT PANEL	PU
12 3A	A20-1402-03	FRONT PANEL	MW
12 3A	A20-1403-03	FRONT PANEL	L
13 1A	A50-0059-02	SIDE PLATE (L)	T
14 1A	A50-0060-02	SIDE PLATE (R)	*
15 1A	A54-0169-02	WOOD TOP BOARD	*
C31 ,38	C91-0039-05	MYLAR 0.1UF	J
C39 ,40	C24-1410-61	ELECTRO 10UF	25WV
C41 ,42	C46-1712-26	MYLAR 0.0012UF	K
C43 ,44	C24-1710-51	ELECTRO 1UF	50WV
C45	C25-6547-67	ELECTRO 47UF	35WV
C46	C24-2010-51	ELECTRO 1UF	100WV
C47	C71-1727-15	CERAMIC 270PF	J
110 2B	F05-6024-05	FUSE (6A)	F1-4
110 2B	F05-6024-05	FUSE (6A)	UM
110 2B	F05-6322-05	FUSE (6. 3A)	F1-4
110 2B	F05-6322-05	FUSE (6. 3A)	TW
111 2B	J13-0055-05	FUSE HOLDER	
L1 ,2	L39-0085-05	COIL	
R5 ,6	R43-1227-25	FL-PROOF RD2. 7K	J 2E
R17 ,18	R43-1247-25	FL-PROOF RD4. 7K	J 2E
R23 ,24	R43-1210-15	FL-PROOF RD100	J 2E
R25 ,28	R43-1222-15	FL-PROOF RD220	J 2E
R29 ,30	R47-1412-35	FL-PROOF RS12K	J 3A

① Exploded view drawing No.

② Position in exploded view.

③ Symbol of new parts.

④ Area to which parts are shipped. Example: A20-1402-03 is the parts No. of FRONT PANEL ASS'Y for the "K" type products (for USA). When this column is blank, it means that the same type of parts (same parts No.) are used for the products shipped to all areas.

⑤ Reference No. in schematic diagram.

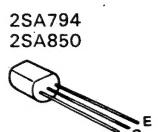
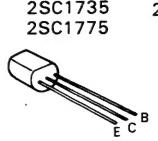
⑥ Abbreviation of "ceramic capacitor".

All capacitors and resistors are listed using abbreviations.

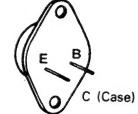
## SEMICONDUCTOR SUBSTITUTIONS

Ref. No.	Name	Substitutions
X05-1630-10 (-11)		
IC1	LA1222	—
IC2	HA11225	—
IC3	HA11223W	—
IC4	NJM4558D (A,B)	NJM4559D
IC5	LA1240	HA1197
IC6	HA1457	—
IC7	TC4069UBP	MC14069BCP
Q1,2,5 Q3,6,9,10, 12,13, 15,16	2SA733A(Q,P) 2SC945(Q,P,K)	2SA640, 2SA750 2SC1980(S,T), 2SC1845(F,E)
Q4,7,8	2SK117(Y,GR,BL)	2SK105, 2SK163
Q11	2SD330(E,F)	2SC1419, 2SD313-AL
Q14	2SC1222(U)	2SC1775, 2SC1980
X07-1680-10 (-61)		
Q1,2	2SK150A(GR,BL)	$\mu$ PA68H(L,M)
Q3,4	2SC1890A(E!F)	2SC1775A, 2SC1439
Q5~8,22	2SC1890(E,F)	2SC1775, 2SC2089
Q9~12	2SB718(B,C)	—
Q13,14	2SD758(B,C)	—
Q15,16	2SA733A(R,Q)	2SA640, 2SA750
20,21	2SA893(E,F)	2SA872
Q17,18	2SC945(R,Q)	2SC1980(S,T), 2SC1845(F,E)
Q19	2SA850(E)	2SA794
Q23	TA7138P	—
X07-1690-10		
Q1,2	2SD760(B,C)	—
Q3,4	2SB720(B,C)	—
Q5~8	2SC1607(O,Y)	—
Q9~12	2SA1116(O,Y)	—
Q13,14	2SC1890(E,F)	2SC1775, 2SC1089
Q15,16	2SA733(A)(R,Q)	2SA640, 2SA750
X08-1710-10		
Q1,2	2SK163(K,L)	2SK68A(L,M,N)
Q3~6, 9,10	2SB725	2SA1023(P,K), 2SA777, 2SA850
Q7,8	2SD767	2SC2378(P,K), 2SC1509, 2SC1735
Q11,12,14	2SC1845(F,E)	2SC1890, 2SC2008
Q13	2SA992(F,E)	2SA872
X11-1550-10		
Q1,2	2SK68(M)	2SK117(GR), 2SK105
Q3,4, 7~12	2SA872(E)	2SA992
Q5,6	2SC1775(E)	2SC1890, 2SC2089
Q13	2SD330	2SC1419, 2SD313V-AL
Q14	2SB514	2SB507V-AL
Q15,17	2SC1890(E)	2SC1775, 2SC2089
Q16,18	2SA893(E)	2SA872

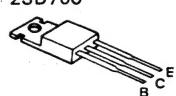
2SA640    2SB725    2SC1775A  
 2SA733A    2SC945    2SC1890  
 2SA750    2SC1222    2SC1980  
 2SA777    2SC1439    2SC2008  
 2SA872    2SC1509    2SC2089  
 2SA893    2SC1735    2SD767  
 2SA992    2SC1775



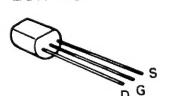
2SA794  
2SA850



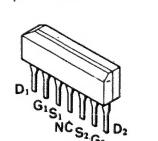
2SA1116  
2SC2607



2SB507V-AL  
2SB514  
2SB720  
2SC1419  
2SD330  
2SD313V-AL  
2SD760



2SK68  
2SK105  
2SK117  
2SK163



2SK150A

$\mu$ PA68H

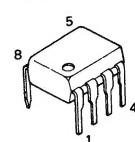


2SB718

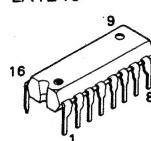
2SD758



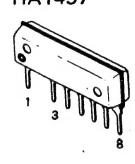
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NJM4558D  
NJM4559D



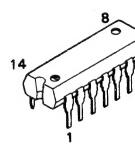
HA11223W  
HA11225  
HA1197  
LA1240



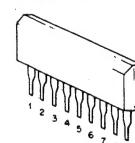
HA1457



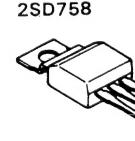
TC4069UBP  
MC14069UBCP



TA7318P



2SB718  
2SD758



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